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ASHAE, ASRE Members Approve Merger

By Phil B. Redeker

NEW ORLEANS, Dec. 1—Members of the American Society of Refrigerating Engineers and the American Society of Heating & Air-Conditioning Engineers have voted to merge the two societies. This was announced by ASHAE President E. R. Queer, and ASRE President Cecil Boling, in a joint statement following completion of balloting at the ASRE semiannual meeting in New Orleans, and at a special meeting of the ASHAE in Chicago.

The consolidated society will be named the American Society of Heating, Refrigerating & Air-Conditioning Engineers (ASHRAE) if approval of the merger and the new name is obtained from the state of New York (under which both societies are incorporated).

Of the ballots cast by the ASRE members, 73% were in favor of the merger, the actual vote being 3,516 for and 1,293 against the merger, a total of 4,809 ballots.

The ASHAE members who voted were 93% in favor of the merger, the vote being 5,307 for and 405 opposing the merger, a total of 5,712 ballots. A two-thirds majority of the total vote of each society was required to approve the merger.

The size of the vote on the issue by ASRE members surprised officers of the society, even though the issue had been a hotly debated one. The number of ballots finally determined as being legitimate by the proxy committees and tellers of election constituted 86% of the ASRE members eligible to vote.

However, ASRE President Cecil Boling said that before the vote was sifted down (the change-of-minds, ineligibles, and the like) a total of 5,800 votes had been cast.

According to officials of the

(Concluded on Page 31, Col. 4)

Inside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

Story of the Week

Former President Harry Truman recalls that he was shy and nervous when he began his first term as a U. S. Senator. An old-timer from the South bucked up his spirits by telling him:

"Quit worrying, young fellow. Your first six months in the Senate you'll wonder how in the world you ever made it. After that you'll wonder how the rest of us made it."

Exciting News About Personal Health

For more than 200 years, biologists have known that electricity is associated with life. Every cell produces electricity; every movement of an arm or leg, or even an eye wink, discharges electricity.

Our daily temperature curves remarkably resemble the curve of the electrical potential in the atmosphere. And Dr. Harold K. Burr, Professor of Anatomy at Yale university, concludes that electricity is the primary force of all forms of life on earth.

In this grand pattern of life's basic forces, negatively and positively charged ions in the air we breathe play a major role. We still don't know why ionized air has a physiological effect on man, animals, and plants; or what are the ideal amounts of ionization for different kinds of ailments.

We still have a long way to go before we know all the answers. But today we can say definitely: ionized air has a physiological effect on us.

Negative ions in the atmosphere, it has been proved, stimulate a sense of exhilaration; while an excess of positive ions produces a feeling of fatigue.

Scientists have known for years that the air we breathe contains electrical charges (ions) and have long suspected that these ions had an influence on man's health and comfort. This theory has been subjected to considerable examination—mostly of a preliminary nature.

Philco recently has undertaken studies on a more comprehensive scale, with instrumentation and apparatus specifically designed for this purpose.

(Continued on Page 14, Col. 1)

Defense Dept. OK's Some Home Cooling

By C. Dale Mericle

WASHINGTON, D. C.—Official approval for air conditioning of living quarters for Armed Forces personnel in certain weather zones has been granted by the Department of Defense in an "instruction" which becomes effective Dec. 10.

Additional investment in air conditioning of upwards of $145,000,000 over the next five years will result from this change in ruling, estimates a top official in the Pentagon.

Maintenance and operation funds will eventually increase $17,300,000 annually as another result of the new policy, this official believes.

The new instruction, No. 4270.7, cancels the previous one of the same number issued Aug. 1, 1956. It was issued by Floyd S. Bryant, Assistant Secretary of Defense, Properties and Installations.

Military quarters in some

(Concluded on Page 37, Col. 1)

The Air We Breathe May Be Getting Scarce

(Conscience of the Industry Editorial by George F. Taubeneck)

IN BELGIUM there's a dedicated organization known as the Society for Pure Air. This page heartily favors the founding of a similar society in these United States of America.

We can live without food for weeks, without water for days, but without air only a few minutes. It's the most precious stuff we have. Yet, we're fouling it up at an alarming rate.

Everytime you pause at a stoplight beside the stinking exhaust of a municipal or intercity bus you get a rough idea of what's happening to the stuff we breathe.

Add what comes out of the tailpipes of millions of automobiles and trucks daily, the fumes belched from factory

(Concluded on Page 18)

Thomas A. Edison Cooler Line Bows

By George M. Hanning

JACKSON, Mich. — A new "Thomas A. Edison" line of air conditioners, dehumidifiers, and electrostatic air filters was introduced to its field force here recently by the Coolerator Div. of McGraw-Edison Co.

M. F. Beisber, president of Coolerator, said that this is the first time the name Thomas A. Edison has been allowed to be applied to a line of home comfort appliances.

Permission for such use was granted by Charles Edison, son of Thomas A. Edison and chairman of the board of McGraw-

(Concluded on Page 4, Col. 1)

BEHIND PAGE ONE . . .

5-Year Warranties May Undergo Some Changes In '59

DETROIT — The year 1959 will mark the introduction of some changes in certain aspects of the 5-year extended warranty on refrigeration compressors and the refrigeration cycle, and probably a reappraisal of the whole warranty situation.

On the other hand, on the basis of present evidence it doesn't seem likely that there will be any general agreement to "drop" the 5-year warranty during the coming year. While some manufacturers seem anxious to get away from it, or modify the provisions, others seem to have reaffirmed their belief in it. At least one manufacturer has broadened the 5-year warranty on heat pumps to include the heating cycle.

Such modifications as may show up in 1959 will probably involve removing the warranty provisions from the refrigeration cycle (confining it to the compressor only), and elimination of some of the labor allowances granted for replacement of a defective part under the warranty provisions.

There have been rumblings of dissatisfaction from the field over the 5-year warranty for some time. As reported in the NEWS a few weeks ago, Refrigeration & Air Conditioning Contractors Association (national) reported that its trade relations

(Continued on Page 30, Col. 1)

FOR A REPORT on what air conditioning dealers think about the five-year warranty, see pages 28 and 29 of this issue. Editorial Director Phil Redeker joined a couple of hundred prize-winning dealers on a trip, and he reports on some of their reactions to warranty programs and other matters of interest to the industry.

Reciprocal Council Drafts New Code For Detroit Area

HIGHLAND PARK, Mich.—A model refrigeration code that will be recommended to Detroit area communities as a basis for reciprocal licensing was adopted recently by the newly-organized Reciprocal Refrigeration Council.

Frank Drogosch, chief safety engineer for the city of Detroit, said that the city's Department of Buildings and Safety Engineering will ask the city council to repeal Detroit's present code and adopt the reciprocal code.

Fred Stanley, refrigeration inspector for the city of Highland Park, said that his department has already asked the Highland Park council to adopt the new code.

He wants the new code adopted before the first of the year. The new code eliminates the provision for bonding refrigeration contractors. Adoption before Jan. 1 would save contractors the expense of getting new bonds for 1959, he explained.

The code adopted by the Re-

(Concluded on Page 4, Col. 5)

Reentered as second class matter October 3, 1936, at the post office at Detroit, Mich., under the Act of March 3, 1879.

Drayer-Hanson Will Work Through Holidays

LOS ANGELES — For the second successive year, it's good news for the several hundred factory employes at Drayer-Hanson's main plant facility here: No seasonal layoffs during the Christmas holidays, according to C. W. Pollock, D-H's manager of air conditioning and refrigeration.

Production peak is at its highest level again this year at this time, Pollock pointed out, with two shifts and a portion of a third shift keeping abreast of production schedules.

Hussmann Declares Dividend

ST. LOUIS — The board of directors of Hussmann Refrigerator Co. declared a 2% common stock dividend, payable Dec. 29 to holders of common stock.

Airtemp Appoints General Air Supply, Closes Own Branch

DAYTON — Appointment of General Air Supply Co., Inc. here, as Airtemp heating and air conditioning equipment distributor in 13 Ohio and Indiana counties was announced by Joseph B. Ogden, vice president-sales for Chrysler Corp.'s Airtemp Div.

He said the branch operation here is being discontinued.

General Air Supply, headed by Robert Barker, will serve Montgomery, Greene, Shelby, Logan, Darke, Champaigne, Clarke, Preble, Fayette, and Butler counties in southwestern Ohio and Wayne, Fayette, and Union counties in eastern Indiana.

Ogden said "the appointment of Barker's organization was made as part of a program under way to strengthen its distributor operations.

"Our policy is to obtain the services of top flight men as independent distributors in areas where they are available," he continued. "We will consider wholesale selling through branches only when this kind of distributor cannot be found."

Employes of the branch here will be assigned to new duties within the division.

As a distributor, Barker will handle the complete line of Airtemp commercial and residential heating and air conditioning equipment.

Barker also operates Barker Furnace Co. which installs and services air conditioning and heating equipment in the Dayton area. Besides operating the two companies, he was the promoter and currently is part owner of "Icelandia," an artificial ice skating rink in Dayton.

U. S. Court of Appeals In Denver Upholds Brown-Olds Remedy

WASHINGTON, D. C. — The U. S. Court of Appeals, 10th Circuit, Denver, recently granted a National Labor Relations Board petition for enforcement of a board order requiring a Colorado wood products company and a Teamsters' Union local to pay back union dues and initiation fees collected under a union security contract.

The company and union were ordered to return all dues and assessments collected for a six-month period prior to filing of unfair practice charges.

Commenting on the court's action, the National Association of Plumbing Contractors said: "This decision in effect upholds the severe Brown-Olds remedy imposed upon both labor and management for the maintenance of a closed-shop agreement and its illegal hiring provisions.

"It is clear, therefore, from decisions of the board and the courts in November, that continued effort must be made by plumbing contractors and employes' unions to conform to recent NLRB decisions and subsequent contract alteration requirements of the board."

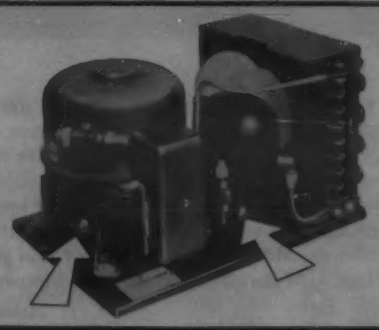
"I AM FRANKLY AMAZED AT BENDIX-WESTINGHOUSE"

"When we switched to Bendix-Westinghouse, we were amazed at the reduction in our compressor failures."

So wrote Mr. Chester A. Kuebler, President of Uniflow Manufacturing Company, after using several thousand of our condensing units. Uniflow manufactures a wide range of quality refrigeration products, demanding a high degree of satisfaction among many different types of customers.

Mr. Kuebler also tells us, "We are very happy with the fine service we have received from your company."

Join the 300 other new users of Bendix-Westinghouse products who agree with Mr. Kuebler. Each has discovered the extra value you get at no extra cost when you order Bendix-Westinghouse.



Liquid level test port (Arrow No. 1) for fast, accurate assurance of right refrigerant charge. (Arrow No. 2) Oil level check plug—for fast, accurate check of the compressor oil level. A typical example of superior Bendix-Westinghouse design.

Bendix-Westinghouse

EVANSVILLE, INDIANA

A Division of Bendix-Westinghouse Automotive Air Brake Company, Elyria, Ohio
Export Sales: Bendix International, 205 E. 42nd St., New York 17, N. Y.

Thomas A. Edison Cooling Line--

(Concluded from Page 1, Col. 2)

Edison Co. Beisber admitted that there had been considerable opposition to such use by some members of the board of directors. But, he said, Edison approved the step and has taken a personal interest in the program.

The Thomas A. Edison line will replace the Manning-Bowman line, which is being dropped, according to Robert C. Marbach, advertising and sales promotion manager.

It will be sold through distributors who have dealer organizations only, according to W. G. Kronauge, vice president in charge of sales. It will not be sold to chains or direct to dealers.

Announcement of the new line was sent by letter last week to 2,912 independent distributors in 90 key marketing areas of the country, Marbach declared.

Along with the Thomas A. Edison line, the company also announced its 1959 Coolerator line of air conditioners, dehumidifiers, and air filters. This line will be sold direct to dealers.

In central air conditioning, the company will offer improved packaged air conditioners in 2, 3, and 4-hp. sizes and remote units in 3, 4, and 5-hp. sizes. They will appear under both Thomas A. Edison and Coolerator labels. All are air cooled.

Packaged units will feature slide-out chassis to reduce installation cost and built-in drain pan to meet FHA specifications. Electrical controls are concealed and located in one place out of the air stream. Wires are color coded.

A blower wheel is used on both the condenser and evaporator sides of the unit. Two separate blower motors are used.

All units will be rated according to the new Air-Conditioning & Refrigeration Institute standard.

Edward D. Farrell, regional manager, said that the 1959 models will be repriced to make them more competitive. The electrostatic air filter will be available as an optional accessory rather than as part of the unit.

He noted that the two lines will follow the same distributor pattern as room air conditioners as far as applicable. But. he added, Coolerator units will be sold to heating and air conditioning contractors and Thomas A. Edison units to other distributors when they are more qualified to sell central systems.

In room air conditioners, the company will offer 26 models each in the Coolerator and Thomas A. Edison lines.

THOMAS A. EDISON name makes its first appearance on line of room air conditioners. The portable shown here is one of 26 models in the new line introduced for distribution through distributors by Coolerator Div. of McGraw-Edison Co.

In the Coolerator line are a 7½-amp., 4,200 B.t.u. portable; three small-size "Compact" models of 6,700 to 8,200 B.t.u. capacities; seven "Super" models without electrostatic filter in 10,200 to 17,600 B.t.u. capacities; 11 "Custom" models with improved electrostatic filter in 10,500 to 19,100 B.t.u. capacities; and four reverse cycle models in 10,200 to 19,100 B.t.u. capacities.

The Thomas A. Edison line contains a 4,200 B.t.u. portable, three "Compact" models of 6,700 to 8,600 B.t.u. capacities. seven "Deluxe" models of 10,200 to 17,600 B.t.u. capacities, 11 "Imperial" models with electrostatic filter in 10,500 to 19,100 B.t.u. capacities, and four reverse cycle models in 10,200 to 19,100 B.t.u. capacities.

Reciprocal Code--

(Concluded from Page 1, Col. 5)

frigeration Reciprocal Council is basically that of the city of Detroit, which is now the pattern for four communities currently reciprocating with Detroit.

However, there have been a few changes, enough so that Drogosch prefers to see the new code adopted in its entirety rather than making amendments to the present city code.

One major change is the elimination of the $1,000 performance bond now required.

Another would permit smaller communities that did not want to set up examining boards of their own, to designate the board of examiners for one of the reciprocating communities to serve as their board.

The new code would establish a common $25 fee for refrigeration contractor's licenses and a $10 fee for registration in a reciprocating community. Other fees would be left to the discretion of the particular community.

New installation requirements ask that valves on water connections be placed on the inlet side of the refrigerant containing component only and that units installed in windows, transoms, and wall openings rest on building members of sufficient strength to support their weight.

Air duct systems will also have to conform to National Board of Fire Underwriters standards.

The new code includes reciprocating provisions allowing contractors holding certain heating licenses to waive the experience requirements when applying for a refrigeration contractor license.

To Air Condition New $Million 'Egg Factory'

KEENESBURG, Colo.—More than 300,000 hens will enjoy the benefits of comfortable air conditioning during the summer months, in the new million-dollar "egg factory" currently under construction here.

Owned jointly by J. A. Sharoff & Co. and Mountain States Mixed Feed Co., the huge new plant will incorporate 15 "laying houses" on an 80-acre tract at Columbine farm.

Each of the masonry laying houses will feature both automatic heating and air conditioning, to hold a steady 70 to 75° F. temperature the year around, which, it has been found, is optimum for steady egg production. Two and a half tons of refrigeration capacity will be provided at each of the laying houses, with thermostats at four points within turning the unit on and off as required.

The Sharoff concern, which already operates Denver's largest egg production plant, has experimented steadily with air conditioning and heating and found that egg production is far more "predictable" with the advantages of closely-controlled temperatures.

At the new plant, eggs, as laid, will roll gently out of the nest to a conveyor belt, moving slowly down the left of each nest row, to automatically gather the eggs as they are laid. Getting the eggs away from the chicken's body heat as soon as possible prevents deterioration which would otherwise shorten the marketable life of the egg, it was pointed out.

Solar glass has been used in all the laying houses, to extract heat from the sun, so that on bright, sunny days no artificial heat will be required.

10,000 of Them

Baptists May Shun Corpus Christi If Auditorium Isn't Cool

CORPUS CHRISTI, Texas—Unless its Memorial Coliseum is air conditioned, Corpus Christi faces the loss of a Baptist convention that would attract at least 10,000 delegates to the city next November.

That fact was used recently by the *Corpus Christi Caller* to prod the city council to action on appointing a citizen's committee to look into a lease purchase plan for cooling the Coliseum.

"Other conventions could probably be attracted here if an air conditioned auditorium were available," the newspaper reminded the council. The *Caller* spoke out after the council had done nothing for six weeks on a proposal to appoint a study committee.

Dept. Store Contract Let

CHARLOTTE, N. C.—Ross & Witmer, Inc. had the contract for installation of Carrier air conditioning equipment to serve the new Clark Self-Service Department Store here.

Dallas Blue Cross Headquarters To Get Electronically Controlled Cooling

DALLAS—Receipt of a contract for air conditioning equipment to be used in the state headquarters building for Blue Cross-Blue Shield under construction here at Main St. and North Central Exwy. was announced by Oscar H. Mehl, southwestern regional manager for Carrier Corp.

Under the contract, two electronically-controlled refrigerating machines, with combined capacity equivalent to the melting of 750 tons of ice daily, will be located in the basement.

They will provide chilled water for cooling and dehumidifying air, mixed according to individual thermostatic setting with warm air through high-pressure double-duct apparatus.

Offices for administering health and medical plan services for Texas subscribers will occupy the first 12 floors. An employe lounge with dining facilities for 350, a 290-seat auditorium, and an air treatment plant plus cooling tower will occupy the upper two levels.

The system controlling year-round temperature, humidity, and air distribution was designed by Leo L. Landauer & Associates, local mechanical engineering firm. C. Wallace Plumbing Co., Inc., Dallas mechanical contractor for the project, plans to have the 14-story building completed the end of 1959.

Thomas, Jameson & Merrill of Dallas is the architect. Henry C. Beck Co., also of Dallas, is general contractor.

Heating, Cooling Comes From Edge of Ceiling

BIRMINGHAM, Ala. — The Birmingham Federal Savings & Loan Association has occupied its new $1 million building at 511 20th St., S., which is being acclaimed as one of the outstanding structures of its type in the entire nation.

The completely air conditioned building has a system under which conditioned air is distributed into rooms around the edge of the ceiling, thus cooling the walls in summer and heating them in the cold months.

Improper Installation of Pipe Insulation Can Cause Serious Condensation Problems

WERNERSVILLE, Pa.—"No insulation job is any better than the workmanship that goes into the installation," H. C. Brown, Jr. of Armstrong Cork Co. told the Pennsylvania Society of Architects in annual meeting here.

Discussing condensation on chilled water and dual service lines, Brown, of Armstrong's Research and Development Center, declared this phenomenon is particularly annoying and irritating "when the architect has gone out of his way to write a good specification only to find that sometime after the lines are put in service they get wet, water drips off, causing plaster on the ceiling of the story below to stain and possibly fall off, wood to rot, or something else that can be directly attributable to a failure in the insulation or the insulation job.

"As everyone knows, the only reason for insulating cold water piping is to prevent condensation, or put another way, to keep the outside surface temperature of the insulation from ever becoming equal to or less than the dewpoint temperature of the atmosphere surrounding the pipe.

Adequate Thickness First Requisite

"Thus, the first requisite is to supply an adequate thickness of an insulation that has a low thermal conductivity. There are numerous types of insulation available, many of which will do a satisfactory job if properly installed and properly protected.

"The main difference between insulations is not so much that one is fibrous and the other cellular, or that one is organic and the other inorganic, or that one needs a vapor seal and the other doesn't, but rather what is the likelihood that the mechanic who installs the insulation can get a finished job that will perform satisfactorily and continue to give good results for the life of the insulation," Brown said.

Examples of Damage Caused by Condensation

Illustrating his discussion, Brown showed various examples of damage caused by condensation on chilled water lines. Fig. 1 shows lines in the ceiling of an apartment leading to an air conditioner in the apartment above. Condensation had stained the ceiling and walls, and finally the plaster came loose.

"In this particular instance the insulation specification called for a 1-in. thickness. Actually the insulation contractor did apply a 1-in. thickness of an insulation that required a vapor seal, in this case a wrapping of tape. The insulation that was used was easily deformed so that when the mechanic wrapped the tape around he compressed the insulation so badly that the final thickness was closer to a ½ in. than the 1-in. thickness originally specified.

"When chilled water was circulated through the system the ½-in. thickness proved inadequate, and excessive condensation occurred," Brown explained.

"There have been cases where the conductivity of the insulation, even though not compressed, has been so high that condensation under certain conditions has occurred. Fig. 2 is a view of the underside of test lines in our laboratory, chilled water being circulated through the lines, and the lines located in a controlled humidity room. The top and bottom lines are the same size and have the same thickness of insulation.

"The insulating materials, however, though appearing much the same are actually entirely different. The insulation on the lower line, the one which is completely covered with drops of water is insulated with a material of considerably higher conductivity," Brown explained.

"In some cases even though the thickness of the insulation is adequate, the nature of the insulation is such that it must be protected with an adequate vapor barrier.

"Although the first consideration is that a tape have low water vapor transmission it is true that there are other practical considerations that must be borne in mind. If a tape is easily stretched, sometime after installation it will tend to revert to its original position. This phenomenon, called 'memory,' evident in Fig. 3, exposes areas from which the tape has pulled away. As a rule this causes loosening of the tape, destroying the moisture seal.

"At both ends of the fitting wrinkling of the tape can be seen. Improper care on the part of the mechanic to see that the tape conforms to the curvature of the pipe covering is as important as making sure that a vaporproof tape is specified that will conform well to the contour of the fitting cover," Brown said.

"Another important factor of

(Continued on next page)

Dimensional Change of Wool Felt Pipe Covering After Exposure to High Humidity

Brand	Exposure to 85° F., 60% r.h. for 7 days followed by drying 40 hours @ 200° F. Lineal Shrinkage of one 36" section (in.)	% Wt. Loss, dry basis	Exposure to 100° F., 60% r.h. for 7 days followed by drying 40 hours @ 200° F. Lineal Shrinkage of one 36" section (in.)	% Wt. Loss, dry basis
A	0.126	4.7	0.158	8.1
B	0.187	7.1	0.220	18.3
C	0.191	8.0	0.349	18.0
D	0.220	6.3	0.436	17.0
E	0.346	9.1	0.349	16.2
F	0.374	8.7	0.346	15.0
G	0.317	9.5	0.313	13.6
H	0.313	8.9	0.590	22.7

Installing Pipe Insulation--

(Continued from preceding page) insulation is dimensional stability. In certain types of insulation if the material is even slightly moist, in some cases even if stored in a moist or humid atmosphere, there is a tendency for shrinkage when the material is put into service. This is particularly true on dual temperature lines where the insulation has an opportunity to dry out during the heating cycle," he declared.

"The dimensional change of eight brands of wool felt pipe insulation after exposure to two conditions with subsequent drying is shown in Table 1. In the two lefthand columns the results are given for exposure to 85° F. and 60% relative humidity for seven days followed by drying at 200° F. It can be seen that the lineal shrinkage of a 3-ft. section can be anywhere from ⅛ in. to ⅜ in. with a weight loss of about 5 to 10%.

"In the sample exposed to 100° F. and 80% relative humidity the lineal shrinkage upon drying was in one case slightly over ½ in. with a weight loss of over 20%. It stands to reason that if a pipe covering of this type is not kept dry before installation, shrinkage could occur that, particularly in single layer work, could partly expose the pipe surface during the heating season. Upon the approach of the cooling season, when chilled water is circulated through the pipe, without question, condensation would occur.

"Although double or multilayer covering would tend to prevent the pipe from becoming directly exposed and thereby minimizing condensation, the true solution is to make sure that the insulation is dry when applied, and protected with an adequate moisture seal," Brown emphasized.

Some Insulations Need No Vapor Barrier

"There are insulations for pipe and tubing that are in themselves impermeable to water vapor, and consequently do not require vapor barrier protection. Such covering has the further advantage that it is not susceptible to the dimensional change we have just described. On the other hand, it is absolutely imperative that all joints, longitudinal and butt joints, be properly sealed.

"So that the insulation can be simply and quickly installed, types in this category are normally resilient and flexible. This flexibility has the advantage of permitting the mechanic to do an easier, faster, and neater job, and in certain instances permits the material to be slipped right over bends and fittings. On the other hand, resilience in the material introduces certain problems, one in particular being hanger design.

"This view (Fig. 4) of a test line in the laboratory shows an incorrect method of supporting a tubing insulated with flexible insulation. As can be seen, the compression resistance of the insulation is inadequate to support the load and severe indentation occurs. Naturally this would be expected to decrease the insulating effect, causing condensation and corrosion on the clevis hanger," Brown said.

"In the case of this perforated strap hanger (Fig. 5) again the weight of the pipe and insulation is such that severe compression of the insulation occurs causing a point of weakness and possible condensation.

"In order to prevent deformation of the resilient insulation it is necessary either to support

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FIG. 1—Tight wrapping of tape compressed insulation, permitting condensation which stained ceilings and walls, broke plaster loose.

FIG. 2—High conductivity of insulation on lowest line permitted condensation.

FIG. 3—"Memory" forces stretched tape to revert to original position, thus destroying moisture seal.

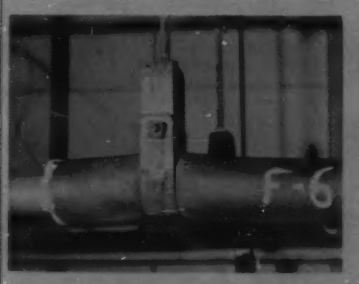

FIG. 4—Hanger compresses flexible insulation, reducing thickness and permitting condensation to occur.

FIG. 5—Another example of improper hanging of pipes with flexible insulation.

FIG. 6—Cork stopper imbedded and sealed in flexible insulation provides proper support for pipe hanger.

Improper Pipe Insulation Installation

(Concluded from preceding page)

the pipe or tubing direct, and insulate the support part way, or apply an insulation between the tubing and support which will resist compression.

"In Fig. 6 an ordinary cork stopper has been embedded in the flexible insulation by the mechanic as a support for the clevis hanger. This not only resists compression but also acts as a rigid insulation preventing condensation. It is important to note, of course, that the stopper must be sealed in place so that there are no open joints," Brown commented.

"Another example of where a serious condensation problem can occur is improper design or installation of a chilled water or dual service line extending through a wall opening. This is particularly true where flexible insulations are used that will indent or compress if allowed to bear directly on the bottom of the opening. The best solution is to support the line in such a way that the entire exterior surface of the pipe insulation is directly exposed to air.

"Improper support for cold water tubing was the cause of trouble in another installation where air conditioning lines were located above an acoustical ceiling. The lower line was supported on a board, which resulted in such severe deformation of the insulation that condensation occurred causing water to drop down on the acoustical ceiling below," he said.

Several other instances of improper insulation were cited by Brown. An uninsulated valve handle above the suspended ceiling of a motel led to condensation and consequent dripping and staining.

"In some instances even though mechanics do an excellent job with perfectly good specifications, the conditions are such that the normal thickness of insulation won't prevent condensation," he further pointed out.

There was condensation, for example, on insulated chilled water piping in a soaking wet crawl space, which would probably have occurred even with heavier insulation, Brown indicated.

"In this case the application of a good vapor barrier treatment on the underside of the space could conceivably have been instrumental in stopping the moisture source," he suggested.

In another case, an uninsulated return line from a floor mounted conditioner was in direct contact with the concrete floor. This cooled the floor enough to permit condensation on the floor itself, extending out an appreciable distance from the unit.

Carrier Appoints Wilson, Gerteis

SYRACUSE, N. Y.—Appointment of Maurice J. Wilson as sales manager of commercial air conditioning of the Unitary Equipment Div. of Carrier Corp. was announced by Russell Gray, vice president and general manager of the division.


M. J. Wilson


Karl Gerteis

Wilson will direct the sale of self-contained and engineered air conditioning products. He formerly served as product specialist for "Weathermaster" air conditioning systems with the Machinery & Systems Div. of Carrier.

Gray also announced the appointment of Karl Gerteis as manager of the development engineering department of Carrier's Unitary Equipment Div. Gerteis formerly was manager of the compressor development department, a position he had held since 1953.

George I. Boone Dies of Heart Attack at 67

NEW YORK CITY—George I. Boone, eastern district sales manager of Tecumseh Products Co., and an industry veteran, died in Pompano Beach, Fla., Nov. 26 after a heart attack on a golf course. He was 67 years old.

A graduate of the University of Illinois, Boone entered the refrigeration industry in 1928 as sales manager of Hussmann Refrigerator Co. He also was with Mills Industries and Warren Refrigerator Co. before joining Tecumseh in 1935.

He is survived by his wife, Kathryn, son, George B. Boone, and six grandchildren. He was buried in Douglaston, L. I., N. Y., Nov. 30.

Perfection Names Jaqua As Advertising Agency

CLEVELAND — Selection of The Jaqua Co. of Grand Rapids and Detroit as advertising agency for Perfection Industries, Div. of Hupp Corp., has been announced by Carl W. Millsom, vice president in charge of sales and advertising of Perfection.

August Compressor Shipments Top Same 1957 Month

WASHINGTON, D. C. — August shipments by manufacturers of compressor bodies topped shipments of August, 1957, marking the first time that shipments for any month in 1958 have exceeded the corresponding month a year ago, it was reported by the Air-Conditioning & Refrigeration Institute.

As a result, shipments for the eight-month period ended with August came to 2,572,910 units, about 18% under the eight-months' shipments for 1957 of 3,146,987 units. Shipments in earlier months of this year had been as much as 25% under 1957.

Actual shipments in August numbered 150,810 bodies, compared with 147,536 in August a year ago.

Gains were shown in shipments of 1, 1½, and 2-hp. bodies in August, with declines in most of the less-than-1-hp. sizes. Over the eight-month period this year, the largest gains (over 1957) were shown in shipments of 2-hp. bodies—223,460, compared with 184,548—and the ½-hp. size, with 151,294 shipped this year against 73,865 in 1957.

MANUFACTURERS' SHIPMENTS OF COMPRESSOR BODIES PRODUCED BY REPORTING COMPANIES

(Except for household refrigerators)

*Horsepower	Shipment Aug., 1958	Including Jan.-Aug., 1958	Exports Jan.-Aug., 1957
½ & under	†776,496	†776,939	317,189
¼			534,642
⅓	14,580	144,460	167,879
½	5,683	151,294	73,865
¾	3,456	52,615	341,193
1	10,314	540,880	768,880
1½	10,844	195,595	198,754
2	8,073	223,460	184,548
3	4,340	78,679	79,350
5	3,518	52,152	58,878
7½	1,584	24,634	35,591
10	508	7,370	8,267
15	249	3,282	2,623
20	168	1,356	1,653
25	115	1,296	1,357
30	123	1,132	
40	151	1,309	
50	131	990	‡5,071
60	83	690	
75	55	482	
100 & over	28	303	
Total	140,479	2,258,857	2,779,740
For Auto a-c—			
Total	10,195	312,876	366,204
For ammonia—			
Total	136	1,177	1,043
Grand Total	150,810	2,572,910	3,146,987

*For all refrigerants except ammonia (excluding units for automotive air conditioning).

†Combined in order to avoid disclosing the figures of individual companies.

‡Breakdown of 30 hp. & over not available for 1957.

Reporting companies: Airtemp Div., Chrysler Corp.; Bendix-Westinghouse Automotive Air Brake Co.; Brunner Div., The, Dunham-Bush, Inc.; Carrier Corp.; Copeland Refrigeration Corp.; Curtis Mfg. Co., Refrigeration Div.; Frick Co.; Frigidaire Div., General Motors Corp.; General Electric Co.; Kelvinator Div., American Motors Corp.; Lehigh, Inc.; Tecumseh Products Co.; Trane Co., The; Vilter Mfg. Co.; Westinghouse Electric Corp.; Worthington Corp.; York Corp., Borg-Warner Corp.

This summary includes all compressor bodies shipped by the reporting companies **regardless** of whether they were shipped separately or incorporated into a condensing unit or unitary end-use products (such as a room air conditioner, display case, freezer, or commercial refrigerator). Shipments for household refrigerators are **not** included.

Yaglou To Be 17th Recipient of ASHAE's F. Paul Anderson Award

NEW YORK CITY — The American Society of Heating & Air-Conditioning Engineers has announced that Constantin P. Yaglou, professor of industrial hygiene, Harvard University School of Public Health, will be the 17th recipient of the F. Paul Anderson Medal, highest award of the society.

The presentation will be made at the society's 65th annual meeting at the time of the annual banquet on Wednesday, Jan. 28, in the Bellevue Stratford hotel, Philadelphia.

Prof. Yaglou has been engaged in teaching and research at the Harvard School of Public Health for more than 30 years, gaining a reputation for his studies in the hygienic aspects in air conditioning. He has contributed many papers on various phases of this subject for publication in engineering, medical, and public health journals.

It was also announced that the grade of Fellow has been conferred on four members of unusual distinction by the Council of the ASHAE.

They are Society Past President Merrill F. Blankin, Philadelphia; ASHAE Director of Research Burgess H. Jennings, Cleveland; Prof. Richard C. Jordan, Minneapolis; and Prof. Benjamin H. Spurlock, Jr., Boulder, Colo.

These members will be honored with the conferring of the Fellow grade at the annual meeting of the society.

T. J. Ammel To Manage York O.E.M. Sales

YORK, Pa.—T. J. Ammel has been named sales manager, O.E.M. products, for York Div., Borg-Warner Corp., it was announced by A. R. Rising, vice president and director of marketing.

T. J. Ammel

In this capacity Ammel is responsible for the sale of hermetic compressors to original equipment manufacturers. His headquarters will be at the home office here.

Ammel, widely known in refrigerating engineering and manufacturing circles, has a background of 25 years in the industry.

He was with Kelvinator Div. of American Motors Corp. for more than 21 years, serving in a variety of positions, including service, product development, and sales engineering. For the past four years he was assistant sales manager of the contract sales department.

Revere Heater Names Emil Rasa Sales Manager

CLEVELAND — Emil Rasa has been appointed sales manager of Revere Heater Co., a division of Mor-Flo Heater Corp.

Mor-Flo Heater, until recently, has manufactured gas and electric water heaters exclusively for plumbing distributors.

He formerly was district sales manager for O. A. Sutton Corp. in the central region.

McCartin Tells Why UA Won't Establish Special Refrigeration, Cooling Division

Says Union Will Not Force RACCA Membership

(Excerpts from a talk by John J. McCartin, assistant general president, United Association, before the 1958 annual convention of RACCA)

Speaking before the recent annual national convention of the Refrigeration & Air Conditioning Contractors Association (RACCA), John J. McCartin, assistant general president, United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry, gave one of the clearest expositions of the UA's position on its relations with contractors ever to be presented in open meeting.

It covers such subjects as (1) establishment of special divisions within the union for the refrigeration and air conditioning trade; (2) the union's attitude on apprentice training; and (3) the union's stand against any attempt to use it to force membership in any trade association.

Because his talk did clarify the UA's position on these matters of importance to the contractors and their association activity, the following verbatim excerpts from McCartin's talk are published.

I had the privilege of taking part in the original joint program and training committee formed by RACCA and the United Association in 1954. This joint committee has made unusual progress in the few years since its creation. As directed in the agreement creating it, this committee, and our two organizations, have indeed acted for the welfare of the refrigeration and air conditioning industry and to train skilled craftsmen to man our jobs.

In 1954 when the joint program and training committee was created, we had almost 241,000 members. Today we have more than 256,000 members. This includes a gain of about 7,000 members during the past year.

Refrigeration, Cooling Give UA 3,000 New Members In Year

Where did this latest gain come from? We studied our records to find the answer to this question. We found that almost 3,000 of our membership gain during the past year is due to organizing in the refrigeration and air conditioning industry.

You may recall our 1956 UA convention in Kansas City authorized separate refrigeration divisions in our building trades local unions. This was a forward looking step.

Since then we have created 238 refrigeration divisions, organizing state by state across the country and Canada. Recently we divided the United States into sections and assigned a special representative to each section, to devote his full time to organizing refrigeration and air conditioning work. At the present time we have 3,723 members in refrigeration divisions and the number is growing daily.

Last year President Schoemann told you about our apprentice training programs. These programs are designed to produce a well-rounded journeyman suited to your needs and at the same time able to do a satisfactory job in the pipe fitting branches of our industry.

Apprentice Training Covers 5-Year Period

But there are a few things I wish to stress about these programs. Some of these things were touched upon by President Schoemann when he talked to you last year. Nevertheless, they bear repeating now.

First, apprentice training in the United Association is a five-year proposition. It is not a one-year, or a two-year, or a three-year proposition. Our aim and objective is to produce plumbers or pipe fitters or sprinkler fitters or leadburners.

We want the members of our organization to have the skills for employment not solely as refrigeration mechanics but also as general pipefitters on other types of work. This is the only way we can preserve the integrity of our craft and the value of our organization to the entire industry.

There are many pressures trying to force us to take some other course of action. May I be frank to say that some of these pressures come from members of your own association. One purpose of these members is to train a specialized refrigeration mechanic or serviceman in a short period of time—a man who knows nothing about general pipefitting and who would never be able to hold down a job with a general piping contractor.

Let me make it perfectly clear that the United Association cannot under any circumstances agree to such a training program. It is for this very reason that we insist upon a five-year apprenticeship.

In general, we want men to receive more or less standard types of training within the four recognized branches of the craft. As far as possible we want men who can work interchangeably on different types of jobs. We don't want specialists and we refuse to break down our craft into Heinz's 57 varieties.

Of course, we expect trained journeymen doing refrigeration and air conditioning work to know more about this work than anything else. We encourage apprentice training for refrigeration mechanics to bear down on the things most needed to be known in your type of work.

(Concluded on next page)

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About three years of the five-year apprenticeship period should, by all means, be devoted exclusively to your specialty. But the remaining two years must be spent in employment and related instruction outside your specialty. I have in mind such fields as steamfitting or power house work, which will give the apprentice a well rounded background for the future.

Welfare of Individual Craftsman Paramount

You contractors may think you don't need such a well-trained man. But, let me say, that *he* needs this training and the United Association needs him to have it. The welfare of the individual craftsman is what counts with us. And the strength of the United Association rests solidly upon the skills which our members possess. Without them and their skills we would soon lose our ability to serve you and your industry.

By the same token, we cannot create new or specialized subdivisions of our craft. For example, there is no place in the United Association for a certified service journeyman or a certified construction journeyman or a certified combination journeyman.

However, the man who works in your branch of the industry will carry only one book or card and on that card he will be known as a pipefitter. And may I add that any training program in which the United Association or its local unions participate will be designed to qualify that man to do the work of a pipefitter.

Now, in order to assure that the training programs follow UA policies, we must also insist that our local unions have an equal voice with contractors in supervising and controlling every program in the UA.

Since it is the members of our own organization who are being trained, then obviously we have a vital interest in how they are trained. The type and nature of their training can affect both the job opportunities of other members and the continuing ability of our local unions to provide the skilled labor supply in our industry.

So when we lost control over training, in effect we are letting others determine who is qualified to be a UA journeyman. In a very real sense we are losing control of our own union and its policies.

In some instances I have seen agreements now in operation under which local unions have, nevertheless, given away to others the power to shape the training of UA members. For this reason, I want to take this opportunity to inform you that these agreements are contrary to our policy and to ask you to cooperate in eliminating them and avoiding them in the future.

Another matter which President Schoemann desired to have me mention is the use of our local unions to police the membership of any trade association.

UA Will Not Force Contractors Into RACCA

You all know, I am sure, that we have the highest respect for your organization. We have the greatest desire to work together with you in every proper way. Consistently with your own policies, we will certainly urge and encourage every qualified contractor to become a member of RACCA. But we will not force him to. Nor will we refuse to make our members' services available to these independent contractors simply because they refuse to join RACCA. And we cannot be a party to any devices or agreements which have this effect. Just recently we ran across an agreement, for example, which would use the apprentice training program as a device for luring new members into RACCA.

Under this agreement no independent contractor could contribute to the apprentice training fund and no UA member employed by these independent contractors could receive instruction under the local training program.

Instead, each independent contractor is required to provide his own separate but equal training program of the same quality as that provided under the agreement with RACCA members. He must establish a separate trust fund for this purpose, into which he would make separate and equal contributions.

I'm satisfied that the net result of this type of arrangement will be that all of our contractors will join RACCA or else none of our journeymen employed by these independent contractors would receive even the modest training which the RACCA agreement would provide.

We are totally against these agreements and, here again, gentlemen, I ask you to cooperate in avoiding them because they can only throw difficulties in the path which we have been following together.

This Is Not a Change In Policy

In refusing to act to force contractors to join your organization, I want to remind you we are not establishing any new policy within the United Association. This is exactly the same policy we have always followed with all of our contracting groups, including the plumbing and heat contractors, the sprinkler contractors, and the national constructors.

We would be making a real exception and serious departure from past policies if we should take any different position with you.

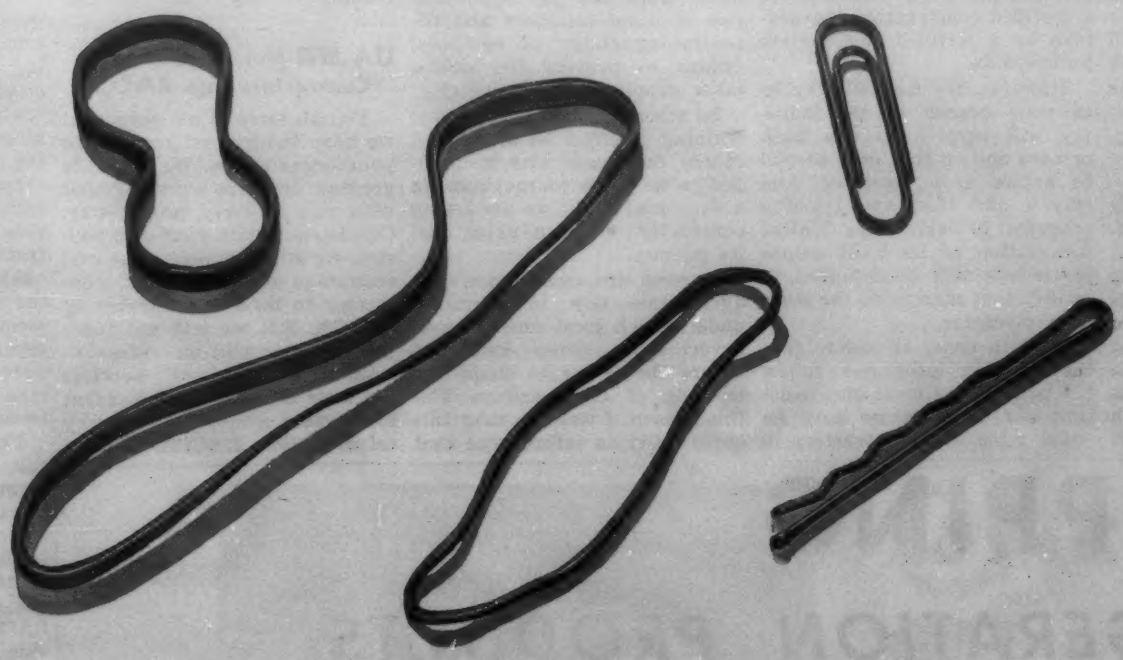
For the future, then, I hope we may continue with the present practice of RACCA separately organizing its own new members and the UA separately organizing its own new journeymen, as a legitimate joint venture.

Typhoon Franchises Sues, Young & Brown

BROOKLYN—Sues, Young & Brown, Los Angeles, has been franchised as distributor for Typhoon Air Conditioning Co., Brooklyn, and Typhoon Heat Pump Co., Tampa, Fla., divisions of Hupp Corp.

The Los Angeles firm will distribute the Typhoon lines in 12 counties in southern California and Nevada. In making the announcement, Don V. Petrone, president of Typhoon Air Conditioning Co., said:

"We are pleased to have an aggressive distributor like Sues, Young & Brown in southern California because this area is potentially the number one market for heat pumps in the country and heat pumps are playing an increasingly important role in Hupp's business.



Why improvise? Why adapt? Use genuine Frigidaire parts, they fit!

Ever repair a compressor with a bobby pin and a wad of chewing gum? Of course you haven't! You wouldn't take the chance even if it could be done. Yet some servicemen still take a chance on parts and accessories which, in the long run, cost more through unnecessary call-backs and lost customer goodwill.

Nearly 10,000 successful servicing dealers know that imitations can never hope to match the made-to-fit quality and economy of genuine Frigidaire parts. Here's why! Frigidaire *knows* the complete engineering background and development of every Frigidaire product! Frigidaire *knows* why each original or replacement part was built the way it was! Frigidaire *knows* what laboratory tests and research went into the original parts manufacturing! And, Frigidaire maintains complete stocks of parts for Frigidaire products old and new!

Make sense? We think so! There are 36 Frigidaire wholesale parts depots across the nation . . . each supplying upwards of 30,000 different items for fast service.

No matter what the job, insist on genuine Frigidaire Parts—precision-built to assure better, longer-lasting results. The right part, at the right price, is as near as the Factory Branch or Distributor's Office listed on the next page.

FRIGIDAIRE
Golden Rule Service

New Frigidaire Ice-Ejector accessory can add extra profits to service calls

On every service call, take along a Frigidaire Ice-Ejector Accessory Package. You'll be amazed how easily they sell themselves. Just show the customer how, at the touch of the lever, the ejector releases and stores ice cubes in the server bin. Each package includes two ejector ice trays and the combination ejector and server bin with removable cover. Fits most food freezers and freezer compartments.

The Consulting Engineer's Column

Aim of this column is to present information of particular and current interest to Consulting Engineers, and those active in application engineering work generally. The editors invite contributions to the column from all who are engaged in such activity.

Three-Pipe Motel Room Air Conditioning

By A. L. Munson, A. L. Munson & Associates, St. Louis

A proposed motor hotel with 184 guest rooms presented special problems. It is a 4-story building arranged in a large "U" with the swimming pool and terraces and wading pool and cabanas inside the "U." All of the guest rooms had large glass areas facing East, West, North, and South.

Cost becomes a major factor in motel design, since the operator must be able to rent his rooms at a reasonable rental consistent with rentals of other motels or hotels in the area—and still show a profit.

One Guest Wants Cooling While Another Wants Heat

And, individual room control is important since one tenant will often want a different temperature environment than the next. During widely changeable between-season weather, one room facing north could want heating at the same time that his neighbor, facing south, could want cooling. Or, a room might want heating in the morning and cooling in the afternoon. So, great flexibility is very desirable.

Individual room units of the heat pump type (but including about 3 KW of electric "strip" heaters) offer a substantial savings in first cost, but the operators believed that initial saving would be offset by much higher operating costs, within a 10-year period.

An induction type system with a separate induction unit in each room would fulfill the requirements very well; or a high velocity "dual-duct" (one hot duct and one cold duct) system would fulfill the requirements very nicely. Both of these arrangements were considered and the costs estimated. Both were expensive, although operating costs were reasonable.

Then another thought offered a possible answer. Instead of using a hot and a cold duct—why not use a hot and a chilled water supply with simultaneous connections and availability to each guest room.

Ordinarily this would mean two sets of water piping, one chilled and one hot, with some duplication of controls, etc. And such a system would be almost as expensive as the first two which were considered. However, it would offer complete flexibility and would permit one room to be heated while the other room was cooled.

Heating, Cooling Can't Be On at Same Time

Also, very simple controls were desired. And after investigation, it was found that a single thermostat *without a summer-winter switch* could be used which would open the hot water solenoid when the thermostat setting indicated that heating was needed; and by the same token open the chilled water solenoid when cooling was needed. A "dead" spot in the thermostat would prevent both from coming on at once. It had to be either one or the other.

Then by providing a simple fan switch with "off," "low," "medium," and "high" settings for fan speeds, a complete year-round set of the very simplest controls was possible—a single thermostat and a simple fan switch in each guest room.

No attendant had to go from room to room to switch the guests unit from summer to winter operation (and some systems use key-operated summer-winter switches to prevent the guest from tampering with it). As long as both hot and chilled water was available, the guest merely set the thermostat where he liked it, and the equipment did the rest, with a fan speed selected by the guest.

For full summer operation, there would be no need of circulating hot water, although normal tap water temperature could be circulated if desired—without firing the boiler. And likewise during full winter operation, there would be no need to circulate chilled water, although again normal tap water temperature could be circulated if desired, without operating the chiller.

Big Benefits Would Come Between Seasons

The big benefits of this type system would come during the in-between seasons, when most normal water circulating systems furnish *either* hot water, *or* chilled water—and the guest takes what is available whether he likes it or not; and whether his room faces north, east, west, or south.

But running duplicate piping systems would be expensive. So instead of running four pipes, three pipes could be used. One "hot," one "chilled," and one return pipe which would return water either to the boiler, or the chiller. Both chilled water and hot water pumps would be running.

Correct Amount of Water Returns To Boiler and Chiller

If 90% of the rooms needed heating and 100° F. water were circulated for heating, and about 50° F. for cooling, 90% of the return water would go through the boiler to replace that being used throughout the system, and only 10% of the return water would go through the chiller, which would raise the incoming water to the chiller just a few degrees.

Even if 50% of the water came back through the chiller on a day when 50% of the guests wanted cooling and 50% wanted heating the water to the chiller would still be under 75° F., particularly when 100% circulation was maintained through the chiller through a 3-way valve by-pass properly controlled to fulfill this function.

This type system would be particularly adapted to an Absorption system since boiler operation would be needed all year anyway, and it would fulfill the flexibility requirements for the guests rooms very nicely.

The fan coil units could be of the vertical type located along the outside perimeter, or they could be of the horizontal type arranged to be furred in above the closet or bathroom ceiling. The latter arrangement is being considered since it will permit outside glass facings from floor to ceiling.

However, where the full glass facing was on the north side, it will be augmented by three lengths of ⅝-in. copper tubing buried in the slab close to the glass, for radiant heating effect to overcome the approximate 2,000 B.t.u. loss through the glass—to prevent a cold floor and draft condition under the window.

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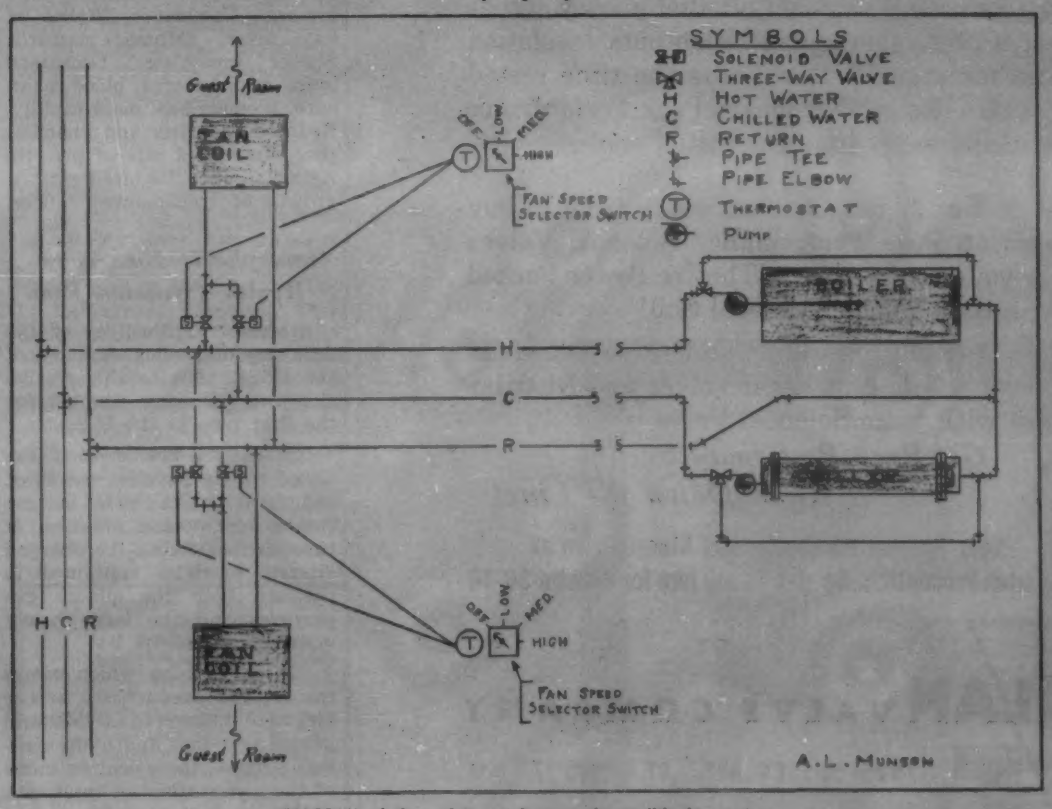

DIAGRAM of three-pipe motel room air conditioning system.

36 Join New Canadian Refrigeration and Air Conditioning Group

TORONTO, Ont., Can. — A Canadian Refrigeration and Air Conditioning Association was formed here recently.

It was brought into being by the votes of 65 manufacturers, wholesalers, and retailers from all parts of Canada. Thirty-six of them joined the group. The others indicated they would support its aims and principles.

Edward Milner of the Edward Milner Co., Ltd. here, heads the interim committee charged with running the organization until a slate of directors is elected.

NEMA Reports Freezer Sales Up for October

NEW YORK CITY—The National Electrical Manufacturers Association reported that total industry sales (including exports) of farm and home freezers in October rose to 108,100 from 71,500 a year earlier.

This brought sales for the first ten months of 1958 to 944,000, compared to 816,800 in the like year-ago period.

October sales of electric household refrigerators also topped the year-ago level, totaling 277,500 against 261,500. However, first ten-month sales lagged behind the corresponding period of 1957, aggregating 2,584,300 compared with 2,889,000. The 1958 figure includes revised data for September, 1958.

Inside Dope

By GEORGE F. TAUBENECK

(Continued from Page 1, Col. 1)

Necessary Details

Ions are formed when air molecules or particles gain or lose an electron. If electrons are lost, the particle becomes a positive ion; if electrons are gained, it becomes a negative ion. Ions in the atmosphere usually are slightly more positive than negative.

Dr. Kornblueh initiated research into the effects of ionization on hay fever sufferers in 1953. His studies indicated that *negative* ionization seemed to relieve symptoms of air borne allergies.

As a result of these findings, Philco joined the program, and contributed equipment which enabled Dr. Kornblueh to establish a hay fever clinic.

Philco developed the precision instruments required to make possible a scientific method of collecting data. These included an ion generator and an ion counter which measured and counted the number of positive and negative ions.

To test the hypothesis that negative ionization was beneficial to hay fever victims, three distinct conditions were utilized in the clinic.

One was exposure under normal ion values (as a control condition for purposes of comparison). Secondly, patients were exposed to negative ionization; and thirdly, to positive ionization.

To insure completely objective results, patients were not told they were being exposed to different types of ionization or even that they were participating in this type of experiment.

Since it was desired to maintain normal pollen counts within the testing room (equal to those outside—and thus prevent variations in pollen count from influencing the test results) a ventilating fan was installed in a window to bring pollen-laden outside air into the room.

Careful pollen counts were made throughout the tests.

A striking result was that 65% of patients with moderate hay fever symptoms received considerable relief under exposure to *negatively* ionized air. An even higher percentage of those patients with severe hay fever symptoms obtained marked relief.

It was noted, however, that relief obtained by patients in a negative ion atmosphere seemed to last only for the duration of exposure, because the symptoms recurred shortly after the patient returned to a normal environment.

Thus, no "cures" were effected by this treatment, and relief was experienced only during exposure to the negative ions. A further result was the interesting finding that positive ionization failed to provide any relief and, in many instances, actually increased irritation and discomfort.

These tests employed Philco-developed laboratory ion generators which utilize a carefully controlled electrical corona discharge. Ions are produced between a tungsten wire and grounded electrodes when high voltage direct current is applied to the wire. A fan picks up the ions and blows them into the room.

This principle also is employed in the "Ionitron," a negative ion generator which was added to Philco's room air conditioners after hospital tests had proved the beneficial effects of negative ionization.

Relief from Painful Burns

More than 50 burn victims at the hospital enjoyed a remarkable absence of complicating infections, and experienced far less pain and discomfort, when treated in a room where an ion generator was discharging negative ions.

In some cases, according to the physicians, the need for pain-killing sedatives and narcotics was eliminated.

Research into ionization is continuing in Philadelphia. In addition to studies already noted, tests have been conducted at a university level which prove that people can work more easily and efficiently with less discomfort in negatively ionized air.

Positive ionization makes routine tasks more difficult, and work generally slows up. Moreover, there were evidences of annoyance, temper outbursts, and other subjective discomforts.

All tests underscore the fact that a predominance of negative ions seems to promote greater comfort and efficiency, and a "normalizing" effect.

Positive ions, conversely, have no demonstrable beneficial effects and, in fact, actually contribute to increased discomfort and respiratory irritation.

Philadelphia researchers have been able to isolate many of the effects ionized air has on living organisms. Here is a summary of some of their findings regarding positive or negative imbalances in the atmosphere.

POSITIVE AIR—Discomfort. Fatigue. Headache. Dizziness. Nausea. Faintness. Fast, labored breath. Increase in headache, asthma, sinusitis. Worsening of rheumatism and arthritis. Increased pulse and blood pressure. Wounds heal slower and are more subject to infection. Aging accelerated. Reduced rate of growth in young animals. Mental depression, nervous tension, fear. Bad temper, intolerance. Lack of confidence.

NEGATIVE AIR — Comfort. Optimism. Exhilaration. Good temper. Confidence. Relief of hay fever, asthma, sinusitis. Slower breathing. Decreased pulse and lowered blood pressure. Wounds heal more rapidly. Reduced arthritis and rheumatism. Increased rate of growth. Aging slowed. Reduced rate of growth of transplanted cancer.

Atmospheric Ions & Health (Russian View)

Professor L. Vasilyev of the Academy of Medical Sciences of the USSR adds to this discussion the following (quoted for the first time in the U.S.A.):

"Recently a new method was added to the physical means of treatment which have become common in medical practice. It consists in utilizing the charged electric particles contained in the air, both the minute gas particles and the large heavy water particles.

"These particles, which ensure the electric conductivity of the air, were discovered in 1899 and named aero-ions and hydroaero-ions. Hence the scientific name of the new method of treatment

(Concluded on next page)

Inside Dope

By GEORGE F. TAUBENECK

(Concluded from preceding page)

—aero-iono therapy and hydro-aero-iono therapy.

Soviet scientists contributed to the creation and practical application of the new method. Long before the discovery of aero-ions, I. V. Michurin attributed much significance to the saturation of the air with electricity.

"At the beginning of the XX century the hygienist I. P. Skvortsov and the physicist and climatologist A. P. Sokolov pointed out for the first time that aero-ions carrying negative electric charges are of significance for human health and for the treatment of certain diseases.

"With the invention of atmospheric ion counters it became possible to determine their quantities in different localities at various times of the year and under different meteorological conditions.

"It was found that the number of light gas aero-ions was comparatively small: 1 cu. cm. of air contains 500-600 on the average. In most places positive ions predominate and only in a few localities lying on the sea coast, along the banks of rapid mountain rivers, or in big conifer forests negative aero-ions often predominate. These localities have been long ago known as good climatological health resorts.

"Thus the idea arose about creating special apparatus which would artificially produce in premises for medical treatment the required amount of light or heavy negative ions that exert a beneficial influence upon the organism.

"The first apparatus of this kind called an aero-ionizer was built and applied in laboratory experiments and for medical purposes by A. L. Chizhevsky in Moscow in 1928.

"Today we possess various types of aero-ioners. With the help of these apparatus millions of unipolar i.e. only negative or only positive gas or water ions can be produced in 1 cu. cm. of air.

"Since the thirties aero-ionizers and counters, which are necessary for the proper dosing of ions, began to be gradually introduced into the practical work of medical institutions.

"At first in Moscow and then in Leningrad, Voronezh, Tashkent, Kislovdsk, Tartu, Riga, and many other cities and health resorts of the Soviet Union centers sprung up for the systematic study of aero-ions and their physiological and medicinal influence.

"In 1950 a special permanent committee was created to study problems of aero-ionization and aero-iontherapy in the Pavlov Institute of Physiology of the USSR Academy of Sciences.

"Two years ago the first conference on these problems was held in Leningrad. At present the committee has scientific ties with 42 research and clinical institutions where the action of atmospheric ions is studied on the healthy and diseased organism and where new types of generators and counters of aero-ions are designed.

"Treatment with aero-ions has opened a new chapter in the textbook of physical therapy."

(Above translation of a Soviet technical paper supplied by Philco engineers.)

So, you can see, we are on the verge of new advances in health protection and advancement through the use of negative ionization in connection with air conditioning. All contractors and dealers should follow these developments closely.

Peerless Literature Includes Selection Charts for Pumps

LOS ANGELES—New literature on the Peerless "Aqua-Line" of pumps for the building trades, including air conditioning applications, offers new selection charts which can be used for any type of application.

Part of the new 1958 bulletin describes the design and operating features of the pumps. However, a special section provides an easy-to-use chart for selection of pumps operating at 1,750 and 3,500 r.p.m. The chart gives the g.p.m. and the total head, and then indicates the pump model and size (in hp.) that will provide the desired capacity.

Factors used to determine the selection on these charts, says the Peerless Pump Div. of Food Machinery & Chemical Corp., were:

1. Selection of the least expensive unit consisting of pump and motor.

2. Motors are not overloaded more than 15% above the nameplate rating. Driver ratings are based on standard open 40° rise 60-cycle induction motors.

3. Ratings are based upon pumping clear water within the temperatures, working pressures, and NPSH requirements indicated for the "seal type" and "packed type" pumps.

Plane Crash Kills Stover

EUGENE, Ore. — Warren H. Stover, 44, owner of Stover Heating Co. in Corvallis and a civilian liaison officer with the Air Force, was killed when his light plane crashed into a mountain about 20 miles southeast of here.

Wrenshall Named General Manager Of Kerotest Mfg.

PITTSBURGH—W. G. Young, president of Kerotest Mfg. Co., announced the appointment of Edward N. Wrenshall to the newly-established office of general manager.

Wrenshall

Wrenshall will direct and coordinate all activities of both the steel and brass divisions of the valve manufacturing company.

His background includes ten years of service as director of purchases at Miller Printing Machinery Co. of Pittsburgh, one year as director of purchases at Kerotest, and two years as general superintendent of Tube City Iron & Metal Co.

80% of Buyers Specify Air Conditioning In Development of Moderate Priced Homes

TAMPA, Fla.—A residential development near here by Clair-Mel Builders, Inc., which eventually will embrace some 4,300 new homes, is well on its way towards becoming one of the nation's "most air conditioned" residential areas.

More than 80% of the buyers of the first several hundred completed homes in the development specified that they wanted the air conditioning which is being supplied by York Corp. in an exclusive contract with the builder.

And Mel Larsen, who heads up the Clair-Mel development, believes that this percentage will increase substantially as buyers of future homes learn from those homeowners already established in the development, the benefits of comfort cooling, at a very low cost.

Furthermore, *all* of the houses which are not equipped with cooling systems at the time of purchase, are so constructed and wired that later installation of cooling equipment can be accomplished with a minimum of cost and effort.

Comfort cooling for these homes is provided by three York room air conditioners, identical models rated at 9,500 B.t.u. capacity, installed through the wall. While there is some variation in the placement of the units because a variety of floor plans are used, generally the three units are placed in (1) the living-dining room area; (2) the master bedroom; (3) a guest bedroom. Layout of the houses and placement of the units is coordinated so that effective cooling is provided for the maximum amount of living area.

These room units are flush mounted on the inside, and fitted with a decorative panel, and protrude only slightly on the outside of the structure, it is stated. Units provide a fresh air function, and are equipped with a room thermostat.

The average additional cost on the mortgage for the cooling is $1.50 per unit per month.

All of the Clair-Mel development homes are built with the three holes through the walls, ready for the installation of the air conditioners. The 230-volt wiring is run in such a way that connections to the air conditioners are readily made.

If the purchaser decides not to have the cooling system installed at the time he makes the purchase, the square holes are filled in, but can be readily opened up at any future time that the owner should decide to have the units installed.

INSTALLATION of York "through-the-wall" air conditioner in the Clair-Mel City development near Tampa, Fla. Some 4,000 homes are planned in this development, and thus far over 80% have been air conditioned.

HOMES in the Clair-Mel City development are air conditioned with three "through-the-wall" units. Placement of the units vary according to the floor plan of the house. In this particular instance a unit is installed high on the wall in the food-preparation area.

Prices Range from $8,950 to $10,950

The three-bedroom houses, complete with built-in kitchens, sell in the price range of $8,950 to $10,950. Since the appraisal value is well over the selling price, there is no problem in getting FHA approval on the mortgages, it is stated.

Some orientation for air conditioning is provided through overhanging roofs and other construction features. Homes are heated by oil-burning wall furnaces.

When Larsen initiated plans for the development, he did not make plans for the inclusion of comfort cooling. He planned the development on a site near a center of industrial expansion, and realized that most of the purchasers would be industrial workers of moderate means.

Builder Says Cooling Has Spurred Sales

However, Hal Dybvik, manager of builders sales for York, got his ear, and sold him on the value of air conditioning as a special new home selling tool, and also outlined the merchandising, engineering, and design service that York would provide.

Larsen testifies that "air conditioning has helped speed up our sales of the new homes, proving that this is a tremendous sales tool. We are certainly now looking at air conditioning as being essential in the modern Florida home today.

"Five of our six model homes are air conditioned. The one that is not air conditioned is built in the center of the group, and as prospects travel the 'show route' they quickly see how much more pleasant life will be in an air conditioned home. It's a bit of sales psychology that is paying off."

TECHNICAL CENTER

By Frank J. Versagi, Technical Editor

What Do You Blame If System Fails?

What do you blame when a system goes bad or burns out? The compressor, drier, expansion valve, coil?

This is a valid question since very many servicemen and users tend to lay blame on components, whether or not there is any reason for doing so.

A simple thing like a drier has been blamed for causing a burnout, because the drier was found to contain sludge and acid when removed from the system. Others have complained when a drier has plugged that it was a defective drier.

Compressors catch the blame when a unit burns out. Since the windings are destroyed, some people reason, it follows that they were defective in the first place. When a second compressor burns out on the same system, many people assume the manufacturer is turning out defective compressors; it never occurs to them that the system can be causing the burnout.

Recently, a heat pump manufacturer was testing a reversing valve. Somewhere along the line, the valve was opened and one of the nylon components was found to be brittle and deformed. The valve manufacturer was called in to explain.

Since it was obvious that the reversing valve had been attacked by mineral acid, the real problem was where the acid came from, not the nylon which was deteriorated by the acid.

Mistaking the Effect For the Cause

All this preamble to point out an unfortunate fact; far too many servicemen and some engineers do not really diagnose a service problem. It is so much easier to replace a component or two and assume that the original was defective. Saying it another way, many people mistake the *effect* for the *cause* of a breakdown. On a compressor burnout, as an example, it is easier to say the compressor was defective than to determine whether the burnout was caused by impurities in the system.

A very common example, known especially to valve manufacturers and wholesalers; it is estimated that from 70% to 85% of all expansion valves returned are either completely operable or serviceable.

One major reason for this tendency to mislay blame is that it is impossible to see inside a system, and is therefore difficult to relate specific causes to specific effects. As one speaker pointed out recently, in the sulfur days, too much moisture would corrode the unit within hours, so it was easy to determine cause and effect.

With today's refrigerants, chemical reactions in the system take place at slower rates, many times taking months and years to reach the point where a breakdown or major service problem occurs. Under these circumstances, it is difficult for the untrained to relate the effect to some cause which may have originated long ago.

For this reason, much of the sound advice published by companies relative to correct installation and service procedures is ignored. Every worker can point to an installation or two which ignores some manufacturers' recommendations and which is still operating beautifully. Thus, one man will choose not to use driers; another will do without a sight glass; a third will make an educated guess on line sizes instead of following manufacturers' suggestions; still another will ignore recommended wiring.

And, in most cases, the systems will operate—at least at first. When a cold season comes around and a remote air-cooled condenser doesn't work as it ought, the erroneous installation is forgotten, and the condenser itself is blamed.

Proper Evacuation, Purging Often Neglected

In no phase of installation and servicing is neglect of recommended practices more pronounced than in avoidance of proper evacuation and purging of new installations or those opened for servicing.

Triple evacuation takes a long time. A system will begin to operate without going through all that bother. The next service call may not come for months. By then, no one thinks to recall that the system was not thoroughly cleaned and prepared, so no connection is made between the service call and the lack of care a few months ago.

John Spence, service manager of Hussmann and one of the strongest advocates of triple evacuation, recently cited some figures which lend important support to the value of this procedure. Spence stated that one of his company's major outlets has followed correct installation and servicing procedures religiously. Although this outlet sells some 1,500 condensing units a year, it has yet to return a single component under warranty after two or three years of warranty protection.

In contrast to this, other outlets, doing one-third the business, have returned as many as 28 components. These organizations are less rigorous in taking the time to make proper installations and are costing themselves and the manufacturer unnecessary money.

Both Spence and John Bopp, Ansul Chemical, advocate checking the oil coloration after the first few days of operation of a new unit where this is physically possible. Discolored oil is an almost certain indication that chemical reactions are taking place and calls for an oil change and a changed drier.

Well installed units have operated for years with no noticeable change in oil color.

When two or three compressors fail on the same system; when a new expansion valve freezes up like the one which was replaced; when an electrical control fails repeatedly, it should be obvious that the difficulty is in the system, not the particular component.

With a little thought after a first breakdown, it is possible to prevent repeated difficulty.

With a little forethought and consideration of manufacturers' recommendations, even the first breakdown can more often than not be prevented.

They'll Do It Every Time

by Jimmy Hatlo

The Air We Breathe May Be Getting Scarce

(Concluded from Page 1)

smokestacks, the irritants poured into our air by countless millions of oil-gas-coal burning furnaces and stoves—yes, and the tars and nicotines from billions upon billions of cigars and cigarettes—and we've got a problem.

It could become a desperate problem, for two reasons:

(1) Our population is growing rapidly—thus multiplying the number of people who drive cars, trucks, and buses; the number of homes which burn coal, oil, and gas; and the number of factories which spew out noxious fumes. Also the number of cigarette, cigar, and pipe smokers.

(2) America is urbanizing itself almost as fast as its families are reproducing. And it's in the cities—where people who burn things crowd together—that the air is despoiled the most.

At least 10,000 American cities have an air pollution problem of some kind, according to Dr. Mark Hollis, Assistant Surgeon General of the U.S.A. (Dr. Hollis is in charge of sanitary engineering services for the nation; directs Federal aid for smoke and haze problems; sets standards for treatment of city water supplies; and keeps tabs on radioactive fall-out).

"Considering the accelerating tempo of modern living," he alerts us, "somewhere on the growth curve air pollution—or, as you might put it—the scarcity of clean, fresh air—will have measurable effects on public health."

Statistical studies already indicate that death rates for cancer of the throat, lungs, and stomach—plus heart disease—are highest where air pollution is the worst.

In at least two recorded cases (Donora, Pa., in 1948; and London, England, in 1952) periods of unusually dense air pollution caused the immediate deaths of thousands of men, women, and children.

This could happen almost anywhere. Over every city there is a limit to the amount of contamination which can be discharged into the air on any one day without causing mass suffocation.

Moreover, the effects of smog—which plagues populous Los Angeles, for example—are, in the words of Dr. Hollis, "subtle, cumulative, and long-term."

Nor have we touched yet on the dangers of atomic radiation—from bomb testing and the like. Here again the effects are *cumulative*, regardless of source, and there are limits to the amount of exposure human beings can tolerate during a lifetime.

Louisville, Ky., has made a study showing that a daily average of 440 tons of man-made substances are thrown into the air over the city's main industrial section.

In Seattle, Wash., autos and trucks alone were found to be putting 100 tons of hydrocarbons, 20 to 80 tons of nitrogen dioxide, and four tons of sulphur dioxide into the city's air every day.

Denver, Colo., known for its pure air, made an atmospheric-contamination study last year. The conclusion was that "increased effort to restore and preserve the atmospheric resources is well justified." The report pointed out that, by 1970, emissions into the air from traffic will be nearly three times the 1950 level.

City officials and businessmen already know how expensive air pollution can be. They estimate the damage from cleaning bills, corrosion, crop losses, lowered property values, etc., in the billions.

First step to deal with air resources on a national basis came in 1955. Then Congress passed the Federal Air Pollution Act, which authorizes the Public Health Service to make studies of air contamination for states and cities. Those studies are described as "only the basis for more work."

Interesting thing about all this is that filtered air conditioning could be an answer to the problem.

Time may come—and sooner than many might guess—when air conditioned homes, offices, automobiles, etc.—will almost be a necessity for survival.

It's high time that we had a Society for Pure Air here. (It should be noted that already there is an excellent Association for Control of Air Pollution in existence.) The air conditioning industry itself, however, should "get into the act" with a *positive* program.

* * *

The measure of success that we have in mastering ourselves will determine, to a large degree, our ability to live happily with others. The person who cannot get along with anybody is invariably at war with himself. His impatience, his uncontrolled temper, his domineering ways are all projections of his own inner conflict.—JOHN S. BONNELL, *No Escape From Life.*

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'The Conscience of the Industry'

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"The greatest dangers to liberty lurk in insidious encroachment by men of zeal, well meaning, but without understanding. Experience should teach us to be most on our guard to protect our liberty when the Government's purposes are beneficial."—*Supreme Court Justice Brandeis.*

OFF THE CHEST

HOLLAND ADJUSTS THE RECORD ON WHAT HE SAID

Robert B. Holland Co., Inc.
San Francisco 5, Calif.

Editor:

At this writing, I do not know who was responsible for the write-up on the merger plan discussion as outlined on the subject page but "Holland didn't say what this article states Holland said," particularly in reference to the statement that "air conditioning is packaged to such an extent an engineering society is not needed."

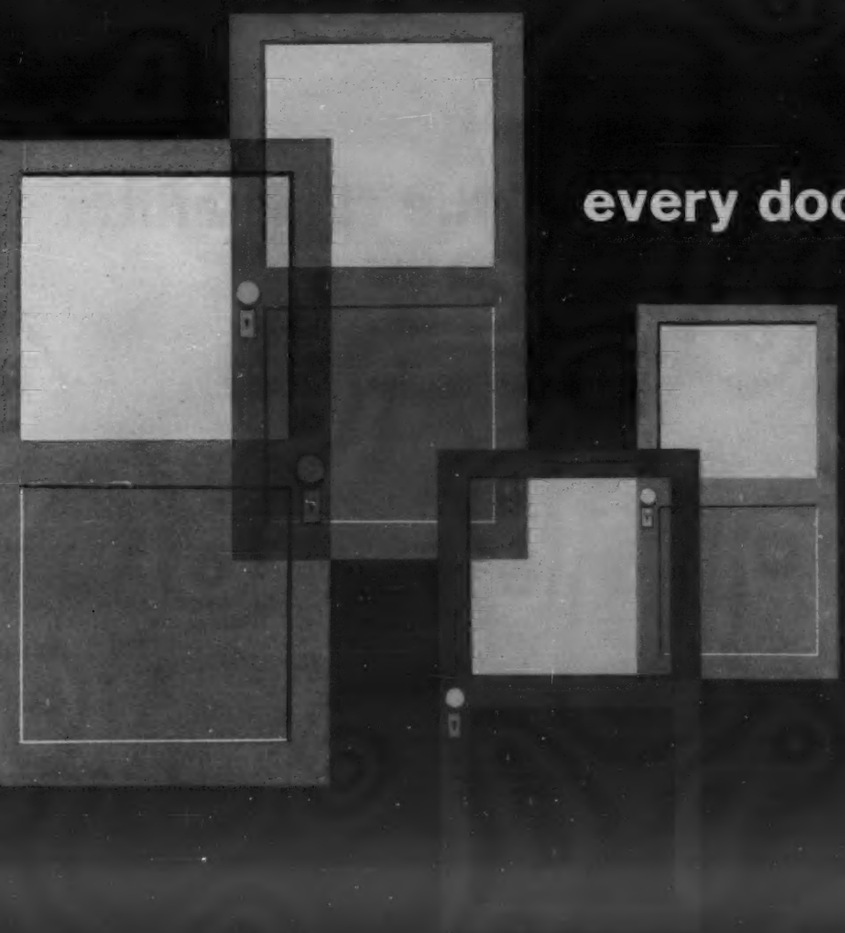
I have been a charter member of the San Francisco sections of both ASRE and ASHAE and, in fact, was chapter president of ASHAE in 1945. I do recall making reference to the fact there is a large segment of ASHAE membership having to do only with *selling* packaged air conditioning which members are not necessarily engineering minded. This statement was not made in any disparaging way as, let's face it, a good salesman is hard to find and is much better off financially than a good engineer.

I might add that when you find that rare combination of sales and engineering ability, you really have something.

The above to adjust the record.

R. B. HOLLAND

P.S. Quoting from context or assuming from reference can give out the wrong ideas. Something like the gal that claimed she made some well known man a millionaire. Her friend didn't believe it and wanted to know how come. The answer was simple. When she met him, he was a multi-millionaire.



every door is open...

Water cooled series.
Self-contained
packaged units
in 50—60—75 ton sizes.
Dependable in performance,
tops in economy.

Water cooled series.
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packaged units
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Extra power reserve,
compact size.

Water cooled series.
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The ultimate in
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Water cooled series.
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Wide versatility.

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Industry's most
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when you can supply the right unit...

TAC air cooled condensers.
Remote units
in sizes from 2—50 tons.
Efficient, low cost answer
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ACCB air cooled condensers
in sizes from 2—10 tons.
High capacity models
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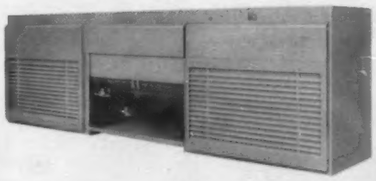

ACSC air cooled series.
Roof mounted cooling units
in 15—20 ton sizes.
Custom designed for
every type of installation—
with or without heating.

CMU space saving series.
Ceiling mounted,
completely self-contained
in 5 and 8 ton sizes.
Handsome styling,
compact size,
simple installation & service.

TYPHOON AIR

The most complete, most flexible line you can sell. Commercial, residential, industrial . . . Typhoon gives you units not just to meet competition, but to beat competition—every time for any job of any size. Typhoon can give you complete market coverage with its extensive array of smartly styled, economical, efficient air conditioners, heat pumps and heating furnaces. A full range of air cooled units from 2 tons to 20 tons, both packaged and as split systems. Water cooled units from 3 tons to 75 tons. Remote air cooled condensing units to 20 tons, water cooled to 75 tons. Gas and oil fired furnaces in horizontal, vertical upflow and counterflow types. And now, Typhoon's line of compact air-to-air heat pumps will open a new era in air conditioning for you. With Typhoon you can also offer the "space conscious" customer air conditioners, heat pumps and furnaces that suspend from the ceiling, install on the roof, in the attic, on the main floor or in the basement. In fact, models are available to go almost everywhere—inside or outside. Why be satisfied with

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custom made for
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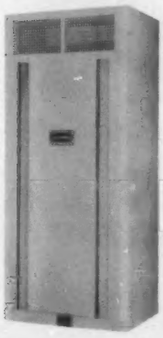
In 3—5—8 ton sizes.



ACCU air cooled
condensing units.
Sizes from 3 to 10 tons.
Powerful, economical,
full rated capacity.

ACCU air cooled
condensing units.
15—18—20 ton sizes
arranged vertically
or horizontally
for best space utilization.

LSU low side series.
Air handling units
in sizes from 3—8 tons
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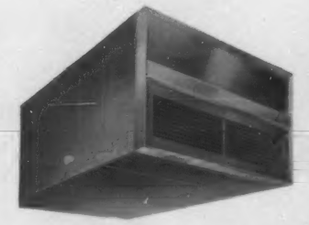
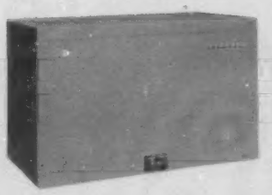
Low silhouette,
smart styling,
easy installation & service.



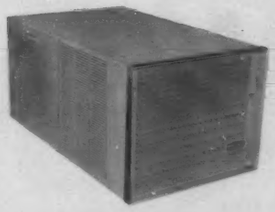
at the right time...at the right price

TAS cooling series.
Air cooled packaged units
in 2—3—5 ton sizes.
Beautifully styled,
ruggedly built.

Water cooled
condensing units
in sizes from 20—75 tons.
Completely packaged
for use with Typhoon
custom made low sides.



Water cooled
condensing units
in sizes 3—15 tons.
Completely packaged units
for use with Typhoon
custom made low sides.

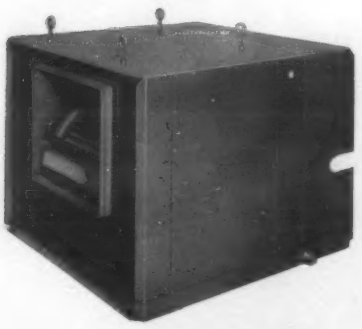


TAS heat pump series.
Air-to-air heat pumps
in 2—3—5 ton sizes.
One simple unit
that both heats and cools.

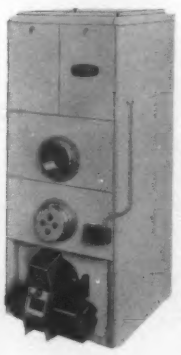
CONDITIONING

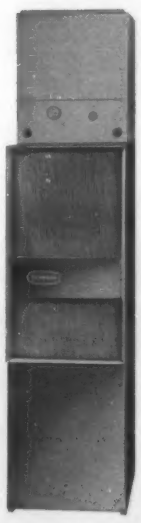
a "bob-tail" line when you know you can always count on getting a specific product for any purpose from Typhoon? Typhoon flexibility means a more profitable business for you! No job is too difficult, no job gets away, because **TYPHOON CAN SUPPLY CUSTOM-BUILT UNITS TO ANSWER YOUR SPECIFIC PROBLEMS.** You can specify the air discharge and return arrangements you need, and the most practical location for utility service and maintenance access openings. Various combinations of compressors, cooling coils and blowers in the same cabinet provide infinite variations in performance characteristics. This extreme flexibility gives you custom made units at mass production prices. The savings you make in installation and service costs become real profit dollars—profits you can keep. From every aspect, whether you're saving space for a supermarket, cooling a giant factory or air conditioning a Cape Cod house, you're always one step ahead when you're backed with Typhoon Custom-Built Quality Air Conditioning!

TAH blower coils.
Air handling units
with cooling
coils in
3 and 5 ton sizes.



Oil-fired furnaces.
96,000—134,000 BTU/HR.
Upflow or counterflow models.
For heating only,
or with matching
cooling equipment
for year-round use.



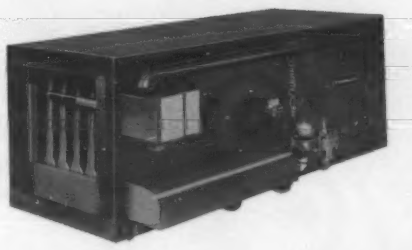


Weather-selector
gas fired furnaces.
100,000—200,000 BTU/HR
and 3 or 5 tons
perfectly matched,
cooling capacities.
Exclusive "Even Temp"
air control.

turn to Typhoon...

Gas fired
counterflow furnaces.
75,000—150,000 BTU/HR
heating capacities.
Cooling easily added.

Weather-selector
gas fired furnaces
in sizes from 75,000
to 200,000 BTU/HR.
A model for every home.



Gas fired-forced
air horizontal furnaces.
Capacity from
80,000—150,000 BTU/HR.
Attic, crawl space,
or ceiling suspended applications.

TAR air cooled series.
Available in
3 and 5 H. P. models.
Efficient, low cost,
air cooled condensing units.

. . for exclusive features, exclusive units. And Typhoon's factory trained specialists are ready to help you solve any problem, close any sale, quickly, easily, profitably. For more and better business, write for full information.

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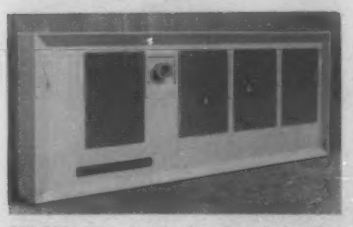
Forced Air Electric Baseboard Heat Being Introduced 'For First Time' by Hunter



FORCED air electric baseboard heating system which was recently introduced by Hunter Div., Robbins & Myers, Inc.

* * *

MEMPHIS—Forced air electric baseboard heat is being introduced "for the first time" by Hunter Div. of Robbins & Myers, Inc. here.

Other electric heat products being announced by Hunter are baseboard heating units which can be installed in existing homes without cutting into walls; five models of recessed wall heaters; a six-model line of portable heaters; and a bathroom heater 8⅜ in. wide.

INSTALLATION SIMPLIFIED

Installation of the forced air baseboard heater is simplified in new or existing structures for the heater comes in a single package and has no accessories to assemble, the company said.

"A low-speed centrifugal fan pulls in floor level air before it becomes cold and delivers freshly heated air directly into the 'living zone,'" it was explained. "The fan operates in tandem with thermostat-controlled heating elements. The motor will operate 10,000 hours on a single oiling."

Models are available in 1,000, 1,500, and 2,000 watts; B.t.u.h. ranges from 3,400 to 6,810. Heater is 33 in. long, 13 in. high, and 3⅞ in. deep.

INSTALLATION IN NEW, EXISTING HOMES

Regarding the baseboard heating units which can be installed in existing homes without cutting into walls, Hunter said that in new construction, by stopping the finished wall surface 6 in. above the floor level, the baseboard panels may be installed directly against the studs.

The heating sections, available in 32 in. and 48-in. lengths, produce 200 watts per lineal foot, according to the company. Accessories include end caps, corner pieces, thermostat control section, and 110 or 220-volt convenience outlets.

Cost of the heating sections is $19.91 for the 32-in. length, $26.90 for the 48-in. length. The thermostat control section is priced at $22.90. Corner sections are $4.69, end caps $3.51, and convenience outlets $5.68 each.

B.t.u. range of the recessed wall heaters is from 5,120 to 13,600 an hour. Thermostat and switch are combined in a single unit. For builders' convenience, all wall models, including the company's bathroom series, are factory assembled and designed for flush mounting in standard walls, it was stated.

All the portable heaters have beige cabinets with anodized gold frames. The fan operates whenever an element is supplying heat.

The smallest model has a B.t.u.h. rating of 4,600; the largest delivers 16,380 B.t.u. per hour. Should a heater be tipped over while in operation, a safety switch will turn off the heater. The outer cabinet can be removed for convenient dusting of the interior.

The bathroom heater features a cradled coil element carrying a five-year guarantee against burnout. Available in either 120 or 240 volts, the bathroom heater has a chrome finish and is operated by an off-on toggle switch.

JIPC Electric Heat Sub-Committee Holds First Meeting

WASHINGTON, D. C. — The first meeting of the sub-committee on Electric Heat of the Joint Industry Program Committee of the Plumbing and Pipe Fitting Industry was held recently.

The sub-committee, composed of three representatives from the Mechanical Contractors Association of America, three from the National Association of Plumbing Contractors, and an observer from the United Association of Plumbers and Pipe Fitters (AFL-CIO), elected Peter B. Gordon, representing MCAA, from New York City, as its chairman and Louis Bloom, NAPC member from Freeport, N. Y., as secretary.

The group recommended that the committee increase its membership to include three voting members from the UA, instead of an observer originally appointed. The committee plans to file a report of its activities and plans for the future with the full Joint Industry Program Committee by Jan. 9.

MCAA representatives on the committee are: Edward F. Glanz, Detroit; Peter B. Gordon, New York City; and Walter C. Schukai, St. Louis. NAPC representatives are: Arthur McManus, Orange, N. J.; Louis Bloom, Freeport, N. Y.; and Beryl E. Notthoff, Hollywood, Calif. Joseph F. Monahan of Washington, D. C., represented the UA.

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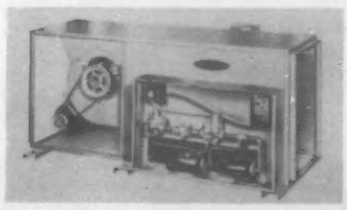
Chattanooga Moves Into Year-Round Field



After more than 35 years' experience in the manufacture of gas heating equipment and three years of product development, Chattanooga Royal Co., Dept. AH&RN, Chattanooga 6, Tenn., is now producing a complete line of gas-fired forced air furnaces, summer-winter air conditioning furnaces, and electric residential and commercial air conditioners under the "Chattanooga" brand name, the firm announced.

"The entire furnace line has been engineered with a year-round air conditioning concept in mind," it was stated. "All belt-drive furnaces are designed and constructed with air movement capacity for later air conditioning installation with only a motor and pulley change, the standard plenum and blower providing adequate air flow."

Eleven horizontal furnace models, including five summer air conditioning models, are offered with inputs from 80,000 to 140,000 B.t.u. The line is completed by 15 vertical furnace models from 80,000 to 150,000 B.t.u. input, including eight summer air conditioning models, and by nine counter-flow furnace models from 80,000 to 120,000 B.t.u. input, featuring four summer air conditioning models.

"All Chattanooga furnaces are approved by the American Gas Association for use with natural, manufactured, or L.P. (bottled) gas," the company said. "Standard equipment includes pilot, valve, thermostat, 24-volt Minneapolis-Honeywell or General controls (all with 100% safety shut-off), fan-limit control, and pressure regulator."

The air conditioning line offers 2, 3, and 5-ton systems with horizontal or vertical evaporator coils for mounting in any forced-air furnace. For the home without ductwork or a central system, self-contained (hermetic) systems in 2, 3, and 5-ton capacity are offered. Two, 3, and 5-ton commercial systems feature a one-piece evaporator-blower assembly designed for suspension from the ceiling.

Outdoor Milk Vendor Insulated for Hot Climates

New 1959 model outdoor milk vendor has been announced by Jennings & Co., Dept. AH&RN, 4311 West Lake St., Chicago 24.

The vendor utilizes a 4-in. thickness of super-density "Fiberglas" which allows it to be operated in even the extremely hot climates, the company said. Electrical wiring and associated parts have been simplified and reduced "to the bare minimum."

Products can be sold in the vendor at any price from 1 cent to $1.25 without changing parts or using tools. It will accept any combination of coins and also gives change.

The vendor operates on 110-volt, 60-cycle, single-phase, alterating current. The entire vending, coin mechanism, and refrigeration unit incorporates only two relays. A control in the machine is said to make the coin mechanism return any money customers have deposited if the milk compartment temperature is above 50° F.

Bantam Dolly Carries 1,000-Lb. Burden

A "Bantam" air conditioner and equipment dolly that weighs only 8½ lbs. but will carry a 1,000-lb. burden has been announced recently by Haaser Sales Co., Dept. AH&RN, 410 Justice St., Fremont, Ohio.

The all-steel dolly with heavy-duty roller bearings is 30 in. long, 4 in. wide, and 1½ in. high, according to the manufacturer.

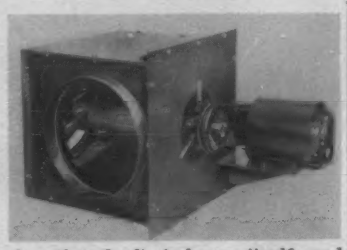
Priced at $14.95 each, the rugged roller permits one man to handle 12-ft. fixtures, air conditioners, condensing units, and many other pieces of equipment, according to Haaser.

Wing Improves Draft Inducer Design

A size 10-D draft inducer of improved design for larger residential and small commercial plants has been announced by L. J. Wing Mfg. Co., Dept. AH&RN, Linden, N. J.

Flue gas handling capacity is up to 8½ g.p.h. of oil and 1,100 c.f.h. of natural gas, the company said. The unit was designed specifically for heating systems in large homes, small apartments, stores, and service buildings.

"The unit can be mounted horizontally or vertically in the breeching to provide maximum flexibility



for the draft inducer itself and the location of the heating plant," it was stated. "The motor and fan assembly are one unit, easily withdrawn for servicing."

Revolving Shelves Keep Catalogs at Fingertip

Designed to aid office personnel who frequently refer to a large number of different catalogs and bound information is the catalog storage rack produced by The Frick-Gallagher Mfg. Co., Dept. AH&RN, Wellston, Ohio.

It can be used with equal advantage by one person or, when centered, by two, three, or more persons, the company said.

The rack is a series of four independently revolving trays in which catalogs may be filed. Each rotating section consists of a one-piece hub and a one-piece bottom disc which is flanged and beaded

for stiffness, and five permanent dividers welded into a rigid assembly. The five permanent compartments measure 21 in. wide at the face, 15 in. deep, and 7 in. high. The over-all height of the rack is 65½ in.

Quick-Heating Soldering, Brazing Device Offered

A quick-heating soldering and brazing device is offered by Auto-Test, Inc., Dept. AH&RN, 600 S. Michigan Ave., Chicago 5, Ill.

Called "Thermo-Weld," this equipment consists of a cabinet; 3 wire AC line cord, 73½ in. long, neoprene covered, with grounding cap and line cord grounding adapter; footswitch, with 6-ft. rubber-covered line; work grounding clamp and 72 in. cable; and high current work probe with carbon electrode and a 70-in. cable.

The cabinet is in the form of a 10 by 8 by 7¾-in. expanded metal cage. On top are three high output terminals, pilot light, socket for holding work probe, and carrying handle.

An outstanding advantage of Thermo-Weld is that it is ready for use as soon as plugged in, the company claims.

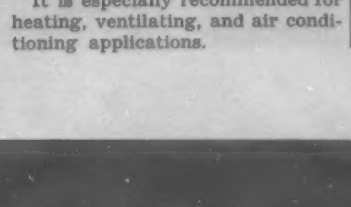
Bakery Case Provides Low, Normal Temps

New refrigerated self-service bakery cases combining low temperature and normal temperature have been put into production recently by The C. Schmidt Co., Dept. AH&RN, 1712 John St., Cincinnati 14.

The low temperature case maintains below zero temperatures and is 8 ft. 7 in. long, the company said. The normal temperature case will maintain temperatures as low as 34° and is 4 ft. 3 in. long. Both are self-contained with each one having its own condensing unit.

Display area for the freezer is 19 in. deep with the top packages within 7 in. of the top, while the normal temperature case is 12 in. deep.

Special length cases are available.



Introduces Perimeter Floor Diffuser

A new low-cost perimeter floor diffuser, featuring a decorator-styled face, a dial-type operator, and side expansion tabs, is now being produced by Air Control Products, Inc., Dept. AH&RN, Coopersville, Mich.

Purpose of the expansion tabs, claimed to be exclusive with Air Control, is to hold the diffuser down in a rough-cut floor opening, it is explained.

Double, opposed-action valve is used on 4-in. widths, single valve on 2¼-in. widths. An "Adjusto-Stop" is provided to permit balancing the system at the diffuser face, and the operator may be locked to avoid tampering. Vanes are adjustable to provide any desired air pattern.

Called the No. 150 the diffuser is finished in Sierra-brown baked enamel and available in five sizes, at list prices ranging from $2.25 to $2.95.

Offers 'Extra-High' Heat Resistant Paint

An "extra-high" heat resistant paint said to make possible effective coating of many metal surfaces, formerly regarded as "unpaintable" due to temperature limitations, is announced by Speco, Inc., Dept. AH&RN, 7308 Associate Ave., Cleveland 9.

Offered under the trade name "Heat-Rem H-170," the paint is claimed to withstand temperatures up to 1,700° F. and to air dry in 30 minutes.

The paint is offered in four standard colors—aluminum, metallic blue, metallic red, and gold, according to the manufacturer.

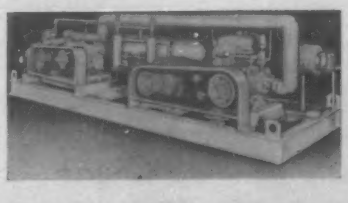
It is especially recommended for heating, ventilating, and air conditioning applications.

'Propane Diluter' Serves During Fuel Cutoffs

To maintain heat processing operations, space heating, water heating, cooking, or refrigeration during periods of fuel cutoff, a "Propane Diluter" said to automatically supply accurate mixtures of propane and air, or butane and air, is being marketed by Selas Corp. of America, Dept. AH&RN, Dresher, Pa.

Available for small, medium, and large installations, propane diluters provide simplified interchangeability without having to adjust appliances or gas burners, it was stated. They can be connected to existing gas piping and eliminate the need for dual piping, separate air blowers, inspirator mixers, or the like, the company said.

"The design of the propane diluter incorporates a balanced pressure, full-floating mixing valve with precision machined gas and air metering ports," it was explained.



Bow 2-Stage Compressor

To provide "high operating efficiency at low suction and high discharge pressures," a new two-stage compressor consisting of a rotary and a reciprocating unit was announced by Freezing Equipment Sales, Inc., Dept. AH&RN, York, Pa.

Typical applications of the new package unit would include frozen food distribution warehouses and field station ice cream hardening rooms where there is a trend to the use of lower room temperatures, the company said, adding:

"The cause of the trend is the effort being made to precool products in storage in order to offset temperature rises during transfer to the consumer market."

Powers Controls Claim Improved Readability

Minimum air usage, cartridge components, and improved readability are listed features of a new series of compact temperature and pressure controllers announced for heating, ventilating, and air conditioning by Powers Regulator Co., Dept. AH&RN, 3434 Oakton St., Skokie, Ill.

Called the Series 200, the indicating penumatic control instruments are available in three temperature and four pressure ranges for stock delivery. Other specifications are available on longer delivery.

The controllers are used with diaphragm-operated valves for gradual accurate regulation of temperature or pressure, it was pointed out. Changes are sensed by a remote nitrogen-filled bulb connected by a capillary to the controller. (For pressure control, a pressure spiral element is used.)

These changes are relayed by the controller to the valve, which modulates the heating, cooling, or pressure medium to keep the process at the desired point.

The Dealers Speak Up (1)

Men Who Are on the Air Conditioning Selling Firing Line Offer Some Viewpoints and Suggestions About the Industry's Future Course

In the Nov. 10 issue, the NEWS published, as part of its "where do we go from here" issue on residential air conditioning, a symposium of opinion of some of the top manufacturing executives in the air conditioning field.

Possibly a similar "formal" survey could be made among contractors and dealers, although selecting the names of those to be surveyed would be a problem. Recently, however, a unique opportunity was afforded the NEWS to get the opinions of dealers when Editorial Director Phil Redeker went along with one of the groups of General Electric Air Conditioning Div. dealers who had been awarded a trip to Nassau for their prize winning sales efforts. He reports on what these dealers are thinking about and discussing in a two-part report.

NASSAU, Bahamas—"It's the most crazy mixed-up business there is, and the problems like price chiseling, getting sales and installation people who can do the job, and handling 5-year warranties, is enough to give you ulcers, but it's still the most fascinating business I could be in—and the jackpot might be just around the corner."

Not an exact quote from a single dealer, the above is a fair composite of the opinions of some of the top dealers and contractors of General Electric's Air Conditioning Div., as they enjoyed a 4-day holiday as a reward for their sales efforts this year. While relaxing many of them were able to talk in an objective way about this "fascinating business."

To present the material in some order and continuity, it will be presented under five major subject headings:

1. What's necessary to sell more air conditioning and to make a bigger profit—particularly in residential air conditioning.
2. The matter of extended (5-year) warranties and the future of warranties.
3. Problems in getting, training, and holding adequate sales and installation personnel.
4. Manufacturers' policies, and their effect on the contractors and dealers selling equipment in the field.
5. Other problems, and methods of meeting some of these problems.

Industry Must Clean Up Its Own Problems

"Sure, we've got to do more to sell the public on air conditioning—but I think it's more important that the industry clean up its problems with the dealers who are selling the stuff and with the builders who are buying a big share of it," declared Harry Rosenblatt, Control Air, Inc., northern New Jersey contractor.

"What I mean about dealers is that I think air conditioning manufacturers will have to make a decision as to whether they are going to try to build up a strong dealer in a certain area who can get volume sales and turn a profit, or whether they are going to try to give their products to each and every little outfit that might possibly—some day—sell an air conditioning unit.

Mfrs. Should Police Advertising, Installation

"And if they feel that they must have some of these little outfits, then the manufacturers ought to watch these outfits' advertising to see that they don't mislead the public on the price of a unit, and that they do an adequate installation job so that the industry doesn't get a black eye."

With architects and builders, says Rosenblatt, the problem is lack of knowledge about not only the technical problems in air conditioning—but also what it can mean in terms of selling more new homes.

"Some of that educational work could be handled by representatives of the manufacturer—especially so if they didn't have so many dealers to call upon.

Get Architect To Give More Attention to Heating and Cooling

"We've got to try to educate the builder and the architect from giving so much attention to things like decorative effects and patio doors, and to put more emphasis on heating and air conditioning systems — which are much more important to the homebuyer.

"And there's a job to be done on selling the fact that air conditioning will make a man more likely to stay around the house—and thus be a better husband and father and a more stable guy financially, more likely to keep up his mortgage payments—that's something that should be sold to the FHA."

Arguing somewhat along the same line was Ben Jaffe, Benmar Corp., Passaic, N. J., who says that builders have got to be made to see the light about not putting a big mark-up on the air conditioning system.

"I told them that at one of their own conventions and they almost threw me out," Jaffe laughed, "but they've got to come to realize that year-round air conditioning is a sales tool for them and that they shouldn't expect to realize any big profit out of it."

One of the best ways to assure the sale of air conditioning in new tract homes where central comfort cooling is "optional" is to get the builder to quote a total price figure that

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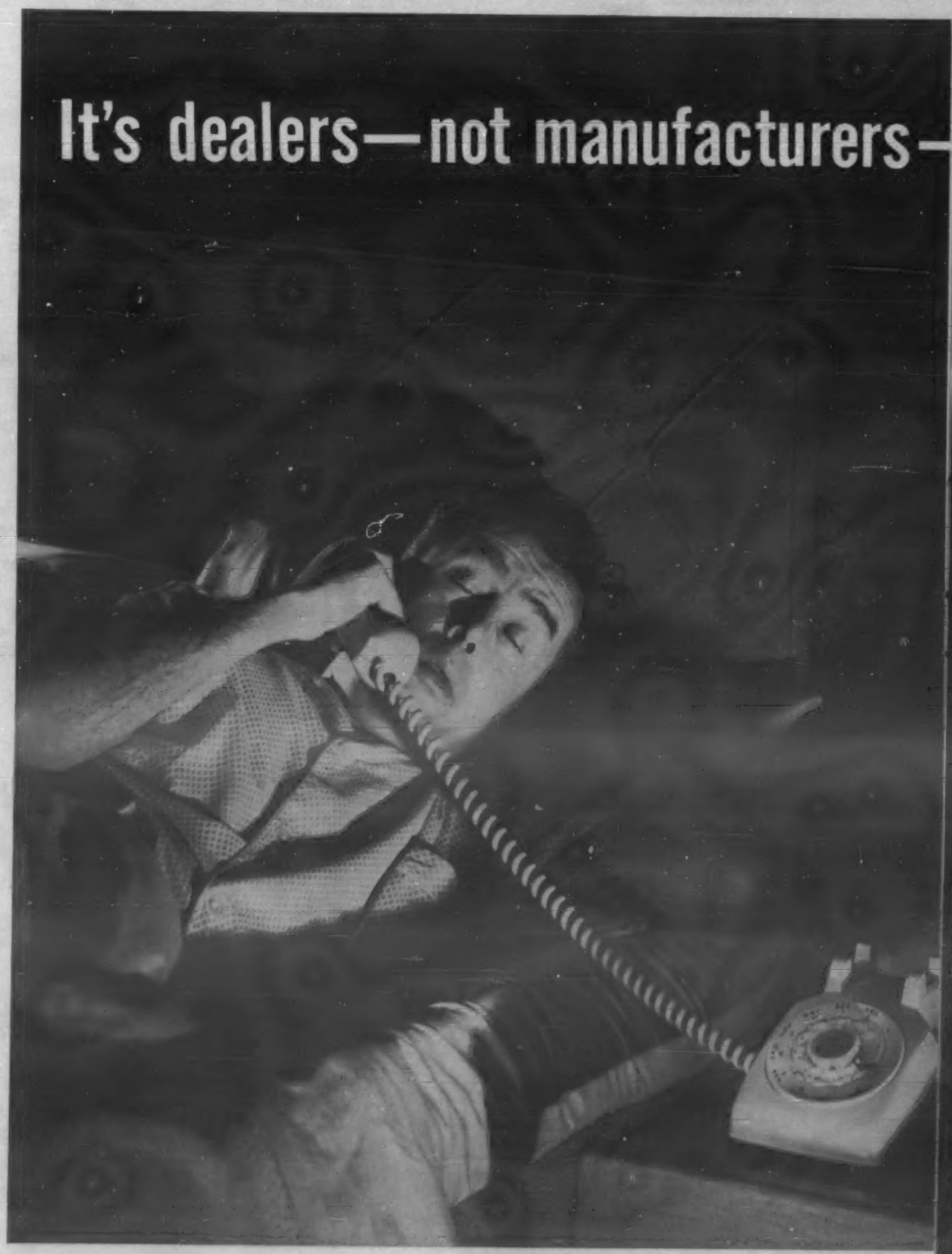

Some Ideas on Residential Market--

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includes air conditioning, says Jaffe. In so doing, the prospective purchaser is rather readily convinced that air conditioning is part of the deal—even though the summer cooling elements may not actually be installed. If he makes the deal and strongly objects to taking the cooling, he is given a rebate. This also tends to keep the builder's pricing of the air conditioning somewhat "honest" because of the rebate angle.

To crack the existing home market, particularly in some of the more expensive homes, Jaffe says the trick is to make the sale to the homeowner who seems to be something of a "leader" in the particular area. For such a "first" sale, the dealer should possibly be ready to make some concessions, he says.

To Mike Moran of Moran & Co., Bloomfield, N. J., it is not enough to get the builder "pushing" air conditioning, it is also vital to have the real estate salesman selling the air conditioning feature.

And about the best way to accomplish this is to convince the builder to pay the salesman a commission on whatever amount the air conditioning systems adds to the sale price.

Good example of how a well coordinated builder effort can sell air conditioned homes has taken place this fall in the tract of homes which Alexander Caplan has built in Short Hills, N. J.

These homes, in the $40,000 range, have had the benefit of some special *Look Magazine* promotion, but the builder has emphasized air conditioning heavily, featuring it in advertising, orienting the house for cooling, building a slab in the proper place for the outdoor installation of the condensing unit assembly—and seeing that the real estate salesman is properly rewarded for his efforts in pushing air conditioning.

Result has been that the big majority of these homes that have been sold thus far have been air conditioned.

When you begin talking about a market like Arizona, it's not so much a matter of *whether* a new home will be air conditioned, as it is *how* it will be air conditioned.

Because the pattern that is being established in this market is one that may be followed somewhat generally as acceptance grows in less torrid climates, some of the trends noted there by M. H. Grossmiller, who heads up the air conditioning operation for Arizona Wholesale Supply Co., distributor for the entire state, merit attention:

"What seems to be shaping up is that the contractor is becoming a specialist either in tract homes or in new custom and existing homes. (This was a trend noted by this reporter in his discussion of the market in southern California, published in the Nov. 10, issue).

"There are advantages either way a dealer goes. In the custom home, the dealer has a better chance of getting close to his asking price and making a reasonable profit, and doing the kind of an installation that will give the customer complete comfort.

"The tract home job may go cheaper and the contractor often has to cut corners, but some of these tracts go several hundred homes at a clip, and it makes for a nice dollar volume—and keeps a man's shop busy.

"Most of the smaller, less expensive homes are still being equipped with evaporative coolers. It's true these are good prospects for mechanical cooling at some later date, one reason being that so many of them are so badly installed. But it would be much easier if we could get mechanical cooling into new homes, and onto the FHA mortgage, because the financing would be easier."

Future of Heat Pump Looks Good In Arizona

Grossmiller and contractors Paul Engebretson of Phoenix and Don Leach of Tucson all believe that heat pump air conditioning has a good chance of gaining the top spot among the types of air conditioning being sold in Arizona — particularly among new homes — before too long.

They point out that there are growing numbers of big projects — such as an 800-apartment unit with roof mounted heat pumps — which are being year-round conditioned in this manner.

"The electric utilities are giving it the big push — they're fighting for the all-electric home, and they're getting the rates down to where operating costs become reasonable, and the heat pump is getting the big push in the electric utility promotion efforts," Grossmiller points out. "The gas utilities are pushing their new units hard too, but this is all to the good for the air conditioning contractor."

The Arizonans think the growth of the heat pump will be speeded up when the range of sizes becomes greater—particularly in the larger sizes.

Backing up this prediction about the heat pump were Dave Brock, G-E air conditioning distributor in Fresno, Calif., and Don Sheldon, contractor in Visalia, Calif., both cities in the interior valleys in California where some very hot temperatures are recorded in the summer.

Evaporative Coolers Only Going Into Cheapest Homes

"With the electric power rates such that you can operate a heat pump in a fairly good-sized home for an average of $25 a month the year-round, there has been a steady growth in heat pump sales," says Brock. "This used to be a big evaporative cooler sales area, but sales of these coolers are now confined pretty much to the really low priced homes."

One reason for this, says Sheldon, is that the increased use of irrigation to aid farming in these lush agricultural communities has raised the humidity markedly. "I've always carried some evaporative coolers because some of the people we sell demand them, but I bought less than ever this year and still had quite a few left over."

As might be expected, some of the Texans present, such as D. W. Knebel, Victoria; J. P. Morrow, Alice; and H. E. Richards, Corpus Christi, reported that all things in the air conditioning line are being done

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Marketing Residential Systems--

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"bigger and better" in the Lone Star State.

In heat pumps, for example, the new Duval County Courthouse in San Diego, Texas, is being completely air conditioned with twelve 5-ton heat pumps, housed in special equipment rooms on each floor. And there were stories of residences being conditioned with twin 5-ton heat pumps.

The Texans see the "battle" between the electric and gas utilities as being important to the future of air conditioning.

"This has always been a big natural gas area," said one of them, "but in the past two years a lot of new homes are going electric, and in air conditioning the gas people lagged behind with a product.

"Right now they've got a much improved product, with which they're making some mighty attractive offers from a cost standpoint, so it could be a real hassle—and I don't see how the air conditioning contractor can be anything but ahead no matter what happens."

Home Builder Gives His Views on Subject

One Texan with a somewhat different slant than any of the other people on the trip was Harvey L. Aamoth, a homebuilding contractor from McAllen, Texas, who was sent on the trip by Wheeler Air Conditioning Co., a dealer with whom he does considerable business. He had a couple of pertinent comments about the part a home-builder plays in the residential sales picture.

"It's important for the air conditioning dealer to get close to builders who do the work on the somewhat more expensive custom homes," Aamoth said. "The home buyer puts a lot of reliance on the builder's judgment, and if the builder is indifferent about air conditioning generally, or any particular make, the buyer is likely to be indifferent also.

"The buyer will generally follow my recommendations on the kind of a system he should get—when he doesn't, then I know some dealer has done a good selling job."

Calls for Better Standards from All

In the eyes of Dwight Lasater, who has specialized in residential work in the St. Louis area, the industry should give continuing attention to better standards—in equipment, in installation practices, and in local selling and business practices among contractors.

He thinks considerable progress has been made in the certification programs of standards by the manufacturers, and in the standards set by the FHA, and in the "Shield" and other programs instituted by the producers of heating equipment. But he thinks there is still a lot of ground to be covered at the local level. And until such standards are attained, he believes sales progress may be slowed up because of the bad public reaction.

"If there's one thing the individual contractor can do to upgrade residential air conditioning work," Lasater says, "it's to be careful not to be engaged in more jobs at one time than he can adequately supervise. If his work spreads beyond the scope of men he can trust for adequate supervision — that's when the jobs get into trouble."

(To Be Continued)

Dealers Grouse About Problems with 5-Yr. Warranty But Try To Be Fair In Their Attitudes on the Subject

The 5-year warranty on the refrigeration cycle, which is now offered by most manufacturers of air conditioning equipment, is not the greatest problem faced by the air conditioning dealer today (among other things, you have to sell something before you start to have a problem with a warranty), but it could be classed among the major "annoyances" that many feel they face in doing business.

There have also been indications that manufacturers are about to make some modifications in the warranty policies, and hence the subject is one that is generating considerable interest currently. The following are expressions from dealers who were asked what they thought about the warranty (the good points as well as the bad):

Negative Side

On the negative side, four officials of Airko, operating in Miami and Ft. Lauderdale, offer viewpoints based on the various segments of the business in which they function:

"It ties up capital which could be used much better in other ways, adds to your cost of operation, and cuts down on service revenue," says Joe Singer, president of the company, and representing the over-all management viewpoint.

"It's tough on the service department from a great many angles — in making money, paperwork, making best use of your manpower, and keeping customers satisfied," relates Bernie Fow, representing the service end of the business.

"It may be a factor in a few sales, but there's no competitive advantage in the warranty today, and if a customer has had trouble getting what he thinks he should get on a warranty, it can lead to some bad word-of-mouth criticism of the dealer," say Al Pasternak and Mike Eddell from the sales end.

"The 5-year warranty makes a chiseler out of the customer," charges Dwight Lasater, Lasater Air Conditioning Co. in St. Louis. "In some cases he hasn't been told, or refuses to listen to an explanation of what the warranty covers, and he thinks anything whatever that may go wrong will be taken care of for five years.

"Or, he may be fully aware of what it covers, but will think that he can bluff his way to get more than he's supposed to—and if you call his bluff, you've made an enemy."

"Isn't it ridiculous that the public will pay $6,000 for an automobile, with all the complicated parts and accessories that go with it, and get only a 90-day warranty on it, while on an air conditioning system, usually much less costly and less complicated, they get a 5-year warranty?" was the complaint voiced by Vernon Blank of Daytona Beach, Maurice Flahive of Austin, Texas, and Abbott Thibodeaux of Baton Rouge, La.

"Why is it that this industry has to be a sucker on this kind of a deal?"

"Even with the labor allowance on the warranty, the dealer is liable to take a good shellacking on any one job—and he doesn't have the spread of jobs to protect him like he would on his own service maintenance contracts," point out New Jersey dealers Ben Jaffe and Harry Rosenblatt.

The "nuisance and cost of paperwork alone" is enough to make most dealers sit up and howl about the 5-year warranty, agree H. M. Grossmiller of Arizona Wholesale Supply Co. and Paul Engebretson, Conditioned Air Co., both of Phoenix. They point out also that there's one bad phase of the long warranty which may not be generally recognized, but which could be of vital concern to the industry:

"That's the fact that in many instances the long warranty may get some dealers into the bad habit of making sloppy installations. He gets the attitude of 'so what, if anything goes wrong, it'll get fixed up without charge through the warranty.'"

Another factor in the high cost of handling in warranty service (and all other kinds of air conditioning service) is the fact that the equipment to be serviced is quite bulky, and generally takes fairly elaborate and sometimes bulky equipment to service it, and practically always at the job site (as contrasted to something like TV sets, which can be taken back to the shop).

Good Points Admitted Grudgingly, Anonymously

Whatever "good" the dealers saw in the 5-year warranty they volunteered grudgingly, or offered it in answer to the direct question "Are there any advantages to the dealer in the 5-year warranty?"

Most of them requested that they not be quoted as saying anything "favorable" to the warranty, so the following is a composite of some of the thinking of "possible" advantages of the long warranty:

"The long warranty may be more helpful than we realize in

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Dealers View 5-Year Warranty--

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the pioneering of new products or designs. With a warranty program spread over all his products, the manufacturer can introduce new products or designs, and if some bugs develop, he can replace the equipment and make the jobs right without busting himself or the dealer. If any dealer will think back over all his experiences with new products, he'll realize what this means.

"Some think the 5-year warranty helps the fly-by-night or fringe dealer, but the opposite may be true. This type of dealer may find it too tough to try to set up and maintain an operation to handle in-warranty service, and he may just decide to forget the whole business.

"The 5-year warranty came into existence because of a competitive fight between companies making pretty much the same type of product. Now it may become a factor in a competitive fight between companies making different types of products to do the same job. For example, gas operated air conditioners (which carry warranties up to 10 years or longer) in competition with electrically driven air conditioners; or conventional furnace equipment (with heating elements carrying warranties up to 20 years) in competition with the heat pump.

"Thus it can be seen that the competitive factor may still be important.

"While it is true that the refrigeration and air conditioning industry has been somewhat 'alone' in the matter of extended warranties, some other industries are beginning to extend their warranties on products that compete for the consumer dollar.

"With the problem of selling air conditioning as tough as it it, a lot of thinking ought to be given to any move that might possibly hurt sales in any fashion.

"When this competitive angle went out of warranties, and all of them settled into a more or less uniform pattern, it took an angle out of the sales picture that was diverting attention from more constructive selling effort. If there are some changes made in warranties, and these changes aren't uniform, it might put a distracting note into the over-all sales effort once again."

Revcor Purchases Bronson Fan Line

CARPENTERSVILLE, Ill. — Revcor, Inc. here, manufacturer of blower wheels and housings, has purchased the Bronson fan line from Bronson Fan Mfg. Corp. of Los Angeles.

This purchase was announced by J. F. Kochevar, Revcor chairman, and J. H. Reichwein, Revcor president. They said all manufacturing operation on the Bronson fan line would be moved to the Carpentersville plant.

Addition of this fan line to the present Revcor blower wheel line will enable Revcor to provide complete air impeller service to the air conditioning, heating, and ventilating field, it was stated.

In line with this product expansion, Revcor announced that sales representation would be increased and that several territories are presently available for representation. It is planned to fill the vacancies in these open territories as soon as possible.

NILFP Announces '59 Convention Dates

ELIZABETHTOWN, Pa. — The 1959 national convention of locker and freezer provisioners will be held Sept. 13-16 at the Netherland Hilton hotel in Cincinnati, it was announced by the National Institute of Locker & Freezer Provisioners.

Men on the Move . . .

Dunham-Bush, Inc.—RAYMOND G. ALBERT, former district sales manager for Brunner Mfg. Co., has been appointed industrial sales representative in the Minneapolis district. He will also represent, industrially, Dunham-Bush's Brunner Div. and Heat-X, Inc., a subsidiary.

PATRICK J. SHEA was named district manager for the Los Angeles area. Previously he was associated with Governair Corp., Trane Co., and Carrier Corp.

Other appointments: HARRY R. BROOKS to salesman handling D-B cooling, Heat-X, and Brunner products in the St. Louis area; THOMAS L. JOLIAT to application engineer, Detroit office; THOMAS WALSH, application engineer, northeast district office; LAWRENCE KOHLBERG to salesman handling D-B heating products in the St. Louis area; FRANK S. ROBINSON to salesman handling D-B cooling, Heat-X, and Brunner products in the Dallas area.

Also, CLYDE C. DOLLENS to industrial salesman covering the southwest district; JOHN CHARLES ENGLISH to application engineer in the Detroit district; THOMAS CANTFLIN to salesman handling D-B cooling, Heat-X, and Brunner products in the Akron territory; J. T. GOLITZ to salesman handling the same products in the Providence-Worcester area; and DAVID DUFUR to salesman in the Portland, Ore. territory.

Amstan Supply, Div. of American-Standard—E. L. GAGLE has been appointed regional manager at Toledo and has been succeeded as manager of the Toledo branch by T. R. FERGUSON, formerly manager of the Charleston branch.

Heater & Tank Div., John Wood Co.—WILLIAM S. HOWLAND, special field representative, was appointed eastern manager of heating sales.

Controls Co. of America—ALBERT E. KORNHAUSER has been appointed treasurer, succeeding JOHN RUANE, resigned. Kornhauser was with Lee Higginson Corp., investment banker, as manager of the stock department.

Minneapolis-Honeywell Regulator Co.—WARREN W. LEE was named eastern region sales supervisor for systems engineering of the Brown Instruments Div. He joined Honeywell in 1950 and served in various capacities. He succeeds J. T. TEED, who has been named petroleum instrumentation market manager.

Tap-Rite Products Corp.—LOUIS J. AMENDOLA has been elected vice president. He joined Tap-Rite in 1953 and in 1955 was appointed general manager and director of purchasing.

Hotpoint Co.—H. P. MURPHY, P. E. GEORGE, and C. J. MILLER have been named zone sales representatives for the midwestern region. Murphy was formerly district manager, midwestern region, for the company's TV department. George was formerly a marketing counselor and zone manager in the midwest. Miller joined Hotpoint in 1957.

Ilg Electric Ventilating Co.—LESTER G. SCHMOCK has joined the firm. He was formerly associated with Sinclair Refining Co. and Murphy & Miller, Inc.

Typhoon Air Conditioning Co., Div. of Hupp Corp.—RICHARD A. COBB was appointed sales engineer in the national accounts department. The position was created as part of Typhoon's expanding service to chain operators. Cobb was a member of the national accounts staff of Frigidaire Sales Corp. prior to joining Typhoon.

Southern Union Gas Co.—RALPH ROGERS, sales supervisor in Albuquerque, N. M., has been named Albuquerque district sales manager, replacing CLIFFORD A. STOCKHOFF who was promoted to Albuquerque district manager. STERLING RUSSELL was named utilization engineer for the Galveston and Port Arthur districts. He has been with Union Carbide Chemicals Co.

Metals & Controls Corp.—JOHN M. WALKER was promoted from assistant controller to controller.

Refrigeration Machinery Corp.—H. W. BAKER has been appointed branch manager with offices in San Francisco for this distributor of Vilter Mfg. Co. His territory is northern California, south to the Kern County line.

Handy & Harman—E. EARLE TIETZ has been appointed to the new post of manager of marketing services. He had previously been industrial products manager.

ROBERT E. BURKE was named to the new position of field sales manager. He was New York district sales manager.

CLARK P. ZITZMANN was named New York district sales manager and WILLIAM K. HONAN was appointed industrial products manager. Both have been sales representatives in the New York district.

Kelvinator Div., American Motors Corp.—ROBERT W. FELL, former commercial division sales representative at Detroit, has moved to a new headquarters at Dallas, succeeding L. W. KLEIN, who has retired. ROBERT F. WITTE, formerly commercial division office manager, has taken over Fell's responsibilities at Detroit.

Norman Brown Co.—CHARLES W. KOPF has been appointed secretary-treasurer of this distributor of Fulton Sylphon valves, regulators, and industrial instruments. Kopf also serves as sales manager. AUBREY B. CRAGG has been placed in charge of office sales and service departments.

5-Year Extended Warranty--

(Continued from Page 1)

committee, meeting with the Air-Conditioning & Refrigeration Institute, had asked the manufacturers' group for action to eliminate the "evils" in the 5-year warranty.

The subject of warranties also came up at the annual convention of the Air-Conditioning & Refrigeration Wholesalers association. However, the 5-year warranty only gained eighth place in a survey asked the question "what are the most serious problems you face in your dealings with your suppliers?" It was mentioned by 7% of the ARW members who replied to the survey.

One move that those in the field should not expect is any concerted effort by manufacturers to do anything about the warranty situation. Since warranties enter into the cost of a product, and any joint or united action by manufacturers relating to any item of cost can be interpreted as being in violation of anti-trust and other Federal laws, the manufacturers are understandably wary of getting together on such a matter.

Mfrs. Aim Towards Correcting Abuses

Manufacturers are interested in seeing that coverage on replacements by warranties stays within reasonable bounds, and they are aiming towards the correction of certain of the "abuses" which have crept into the handling of warranties in the field (there are some estimates which say that as high as 60% of the compressors replaced under warranty programs need not have been replaced).

There are two general kinds of 5-year warranties presently being issued with the sale of new equipment. One is offered on packaged air conditioners, and usually covers the refrigeration cycle, which is generally defined as follows:

An assembly of the compressor and condenser, evaporator coil, expansion device, pressure-relief device, and factory installed refrigerant tubing. Some labor allowance has generally been given for the costs involved in replacing a defective unit or system. A complicated table of labor allowances usually must be referred to in determining how much the contractor can get for labor in replacing an in-warranty system, and considerable paper work is involved each time some in-warranty replacement is made.

The other type of 5-year warranty is one in which a compressor is purchased from an independent manufacturer of compressors by either an equipment manufacturer (of commercial refrigerators, for example), or a wholesaler of equipment, parts, and supplies. The manufacturer usually sells these with a one-year warranty, and will replace the unit if it goes bad within a year.

On top of this, however, the manufacturer or wholesaler usually adds a 4-year extended warranty on the unit, this generally being underwritten by some insurance company specializing in such risks. Generally there is no labor allowance provided for the replacement, and the selling installer is advised to get enough in his price to set up a service reserve to handle such a contingency.

In many of the warranty programs of this type there is a mandatory provision for return of the defective unit to the factory, where it is often rebuilt and returned to the dealer's stock. Thus, the matter of freight charges is often involved. Those who seek the elimination of the extended warranty charge that it imposes unnecessary burdens and costs on all elements in the industry who become involved with warranties, and that it raises the cost of the product to the ultimate buyer.

5-Year Warranty Was A Competitive Weapon

The 5-year warranty came into being as a competitive weapon and after a brief period in which some rather outlandish offers were made, the warranty practices settled down to those which have been described above. However, a competitive factor is still involved, which probably explains the reluctance of those involved to publicize such changes as are being made.

Pendergast Defends Extended Warranty

A defense of the extended warranty has been made in a letter to the NEWS from Tom Pendergast, veteran industry executive who is now vice president of Employers Insurance Service, Inc. Taking note of the issues being raised on the subject, he writes:

"Five-year warranties on the compressor only are practical, feasible, and well accepted. They should be patterned after the warranties given on refrigerators and food freezers for almost as long as any of us can remember.

"So long as any of the large manufacturers, particularly of air conditioners, space coolers, and central systems, sell a 5-year warranty on the compressor, such a warranty will be in demand by the buying public.

"Much of the trouble comes from contractors who try to 'out-warrant' their competitors. We've heard of one contractor who put a 5-year warranty on the refrigerant charge, and probably the next step would be to cover 'down time' on a dollar per hour basis if the equipment is not working.

"Let's clarify our thoughts on what equipment should be covered by a 5-year warranty. Hermetically sealed compressors as such cannot be repaired in the field if there is anything wrong with the motor windings, valves, pistons, or bearings. Semi-hermetically sealed compressors can be and are repaired to some extent in the field, but this work is usually limited to replacing a valve plate if needed.

"We believe that all hermetically sealed and semi-hermetically sealed compressors should reach the user with a 5-year warranty good from the date of installation. This increases user confidence in the equipment he buys.

"An important part of the 5-year warranty is the Warranty Certificate. The warranty should be explained to the customer who should read it and know just what is covered by the warranty insurance.

"The warranty policy in a 5-year warranty plan should be clear and specific as to exactly what is covered, with any exceptions stated. The insurance coverage and rate sheet should for each model or size of com-

(Concluded on next page)

Warranties--

(Concluded from preceding page)

pressor have specific amounts that will be paid the insured in case of a compressor failure, and a premium for that amount of coverage.

"The insured, when taking out the policy, should have the option of specifying how much markup he wants above his present replacement cost to protect himself against possible price increases during the extended warranty period.

"When an Original Equipment Manufacturer takes out a 5-year extended warranty, we believe he should have the option as to how and where compressor replacements can be secured.

"(a) His policy can permit him to make the replacement from his own production or service stock at his plant or from his own stocks elsewhere and he will be reimbursed at the rate he has chosen in accordance with the premium he paid.

"(b) The policy can also be written so that the OEM dealer or contractor takes the defective compressor to the nearby wholesaler of the compressor manufacturer and gets the replacement there. In that case, the wholesaler bills the OEM account and that invoice and the original warranty certificate support the Proof of Loss form filed with the insurance company by the OEM account."

Pendergast said that a "loss prevention campaign" is important in any warranty program. This can be in several forms, including engineering and service bulletins, publication of educational material in trade papers, and talks before contractor and service groups.

"Anything done in the field to help the men handling hermetically sealed units to understand their use and proper methods of testing such units, reduces losses, improves performance, and promotes user satisfaction and confidence."

Detroit ASRE Will Tour New Kroger Food Center

DETROIT—A tour of the new Kroger food distribution center in suburban Livonia has been scheduled for Dec. 8 by the Detroit Chapter, American Society of Refrigerating Engineers. A dinner at the center, 12701 Middlebelt Rd., will precede the tour.

Olin Mathieson Research Center To Be Ready in '59

NEW HAVEN, Conn. — A metallurgical research center for Olin Mathieson Chemical Corp. that combines laboratories and an integrated pilot production plant will be complete here by mid-1959, Stanley de J. Osborne, president, announced. The facility will cost approximately $4,000,000, he said.

September Sales Up for Conditioning, Commercial Refrigeration Distributors

WASHINGTON, D. C.—September sales of air conditioning and commercial refrigeration equipment distributors were up 14% from the year-ago level and down 6% compared with August, according to the Bureau of the Census.

For the first nine months of 1958, their sales were unchanged from the like period of 1957. The distributors' inventories at the end of September were 5% higher than a year earlier but down 1% from a month earlier.

Sales of plumbing and heating equipment and supplies distributors in September showed no change from September of last year and a 12% gain compared with August. Their sales for the first nine months, fell 7% from the '57 period.

Arkla Air Conditioning Buys Buggy Business

EVANSVILLE, Ind. — W. R. Stephens, president of Arkla Air Conditioning Corp., announced that the company recently has purchased the buggy division of Huntingburg (Indiana) Wagon Works.

The division's plant reportedly makes nearly all of the horse-drawn carriages in the U. S. Stephens said buggy manufacture would continue because the demand for horse-drawn equipment is continuing.

Merger Vote--

(Concluded from Page 1)

societies, it may take about six weeks or two months to effect the merger plan. It will be necessary to file application for approval of the merger with the state of New York. It will eventually go before the supreme court of the state, which will determine if the law has been properly satisfied and the rights of the individual members properly protected.

Following approval of the N. Y. supreme court, further approval is required from the state education department and the state labor department, and the articles of consolidation are then filed with the office of the secretary of state, at which time it becomes effective.

While it can't be said definitely, officials indicated that already scheduled plans for national meetings, and programs of local chapters and sections will go ahead through the next summer. This would mean that the ASRE scheduled meeting at Lake Placid and the ASHAE scheduled meeting at Vancouver, B. C. would both be held.

Local sections and chapters will proceed with their separate scheduled meetings or proceed with consolidation under the proposed plans according to their individual wishes.

Dept. of Labor Issues Union Wage Rate Data

WASHINGTON, D. C.—Information on union hourly wage scales and employer insurance and pension payments for selected building trades in 100 cities as of Oct. 1 is available from the Bureau of Labor Statistics, U. S. Dept. of Labor.

Report on Education

Another article in a series dealing with all levels of education and training in the air conditioning and refrigeration industry.

By Frank J. Versagi, Technical Editor

9. What and How Schools Teach

Relative to the effective handling of students' questions, there is much diverse opinion on the best method. Several instructors expressed interest in what others did in this regard, and which seemed most effective.

While results naturally varied with personality of instructors and class, the basic methods are;

allow student to ask questions as they occur to him;

have students wait till end of class or lecture and all ask questions at one time;

have students ask questions of instructor privately after class, so as not to take up class' time.

No technique is fool proof.

Allowing questions at any time is open to a major weakness, and the weakness is in the instructor who too often allows himself to go off on a tangent and to dilute the effect of the planned lecture or course material. Another disadvantage has been mentioned—the fact that in those cases where the questions go deeper than the instructor is qualified or prepared to answer, embarrassment and loss of respect can occur.

The major advantage of this method, of course, is that it allows the student to remove the mental block which might occur if he ponders on his question and loses the rest of the instruction.

A few instructors feel that the class should not be held up or distracted by points which are bothering an individual, but they feel such questions should be answered. So they ask the students to save the questions and ask the instructor privately at some later time. If the question is deemed of general interest, the instructor will bring it up at the next class.

This method has the advantage that it allows the shy students, of whom there are many (and remember we're talking about youngsters *and* adults), it gives them a chance to ask questions which they normally hesitate to do in class. A disadvantage is that the instructor may misjudge the general interest of a question and neglect to explain a point which actually is vague to several more students.

Holding Questions 'Til End of Each Phase Seems Most Effective

Most effective method at all levels seemed to be that of having students write each question down as it occurred, then all ask their questions at the end of each phase of training.

This does two things. Many times, of course, a question is answered within the next few minutes of its occurrence by the normal continuation of the class. Then, handling all questions at once, serves as a brief review and makes the previously rendered information more understandable.

A disadvantage of the system is that some students cannot get a question out of mind after it occurs, and they lose the ability to concentrate on the continuing instruction.

It is the instructor's responsibility to determine the best method of handling questions for his class; it may even vary with each class. The alert instructor watches his human relations. He must locate those students, especially adults, who are ashamed of their lack of knowledge, and who will never ask a question openly.

He must control the students who ask questions they already know the answer to, just to be noticed.

Questions Must Not Lead Instructor Astray

He must watch that he is not taken away from relevant subject matter in answering questions.

Naturally, the kind and number of questions asked depends chiefly on the subject matter as it is related to the general level of the class.

When "domestic refrigeration" is listed in the course outline of several trade schools, manufacturers' schools, or technical institutes, the same thing is not always meant—or at least not the same depth of training, although the general subject matter may be the same.

One course may contain a brief description of the basic refrigeration cycle, the relative positions of components in a domestic box, then go into servicing of typical units.

Another course may expand the discussion of the basic cycle to include a discussion of controls other than a cap tube, may point out the effect of low and high ambient temperatures on the operation of the unit, then show how units are serviced.

Still another course will review the history of refrigeration, give a comprehensive review of compression and absorption systems, explain in detail the design and operation of relays, thermostats, motors, capacitors, show complete disassembly of old and new boxes.

The point is that, under the same heading, quite a variation in quantity and quality of training is possible. Persons attending manufacturers' schools, of course, are there for information on specific items, and they can choose either to attend or not.

Visit Class Before Selecting School

In picking a trade school or technical institute, however, it would pay to take the time to visit a class or two and attempt to determine just how subject matter is handled. The student more interested in manipulative skills for example, would pick a school which slighted academic background a little over one that spends a lot of time in classroom lectures.

This brings us to a discussion of the actual techniques used in the several schools. Colleges, of course, lean heavily on the lecture technique, on the assumption that class is a place to learn, not a place to review what has gone before. Some professors and college instructors like to spend the opening minutes of class to review the last homework assignment and answer any questions about it. Then they lecture on new material for the center and longest period of the class. Finally, they spend the last few minutes assigning new homework and giving specific information on how to handle it.

Lab and Shop Periods

Lab and shop periods are handled in about the same way —a lecture on what is to be accomplished and how, with perhaps a demonstration, followed by student work in the lab or shop.

In principle, trade schools and technical institutes follow this pattern. Some schedule lecture periods so they all fall on one day, leaving the rest of the week for shop work, but most have one or two lectures a day, with the rest of the time being spent in shop work.

Depending on the school, from 60% to 80% of the students' time is spent in shop work.

One-week manufacturers' schools, which in effect are one-shot clinic type courses, adapt the basic system in several ways.

Lecture Periods First, Then Shop Work

Most of the manufacturers' schools attended by the NEWS spent the first day or two exclusively on lecture. The latter part of the course was then spent on work with actual units —air conditioners, freezers, refrigerators as the case might be. This method is logical and is based on the assumption that the students can work more effectively with tools once they know the principles behind service techniques.

But the method can become ineffective.

One manufacturer's instructor, for example, spent the first day and a half lecturing on electrical fundamentals, a half day on basic service techniques. The students just sat back, took notes, and listened. While the subject matter was well organized and fairly well presented, it was just too much at one sitting, for the students were passive spectators—and after a while—bored spectators.

At another week-long school, two days were spent in lecture on basic refrigeration theory, compressors, and controls. But the lecture was accompanied and broken up by live demonstrations; students had to get out of their seats and handle parts and pieces; or time an operation, or draw color diagrams of refrigerant flow in a cycle.

On this subject, William Berg, field education manager, Minneapolis-Honeywell Regulator Co., holds that "everyone learns more if he can deal with specifics instead of generalities. The more a student can actually participate, rather than merely listen to lectures, the more he will learn."

The difference here is that even during lecture time, the students were active, using their minds, not merely sitting back and attempting to absorb a mass of material thrown at them. Students attending this type of lecture were found to be happier and to have absorbed more than those who were made to sit passively through hours of teacher talk.

Mechanical Faults That Reduce Effectiveness

A couple of mechanical points also tend to reduce effectiveness of the long lecture.

First, because the teacher has given the lecture quite often, he tends to give it monotonously and mechanically. The problem is worse if it is a new lecture and he reads it.

Then, too, students are asked to take notes during lecture, but the teacher runs through the material faster than notes can be taken.

There was one case where an instructor was reviewing Ohm's Law. He introduced the formula with the usual I, E, and R symbols for amps, volts, and ohms, but switched to A, V, and O to "make it easier for the fellows to remember."

Four out of the class of 12 were found later to have the six letters erroneously intermingled in their notes and formulas, primarily because the instructor went dashing through the material like he was talking to people who already knew what he was talking about.

During a discussion of an automatic expansion valve and other controls, one school had valves spaced throughout the class so that students could disassemble them with the instructor. Another instructor used the same technique with relays and controls—giving the men something to touch, to work with.

There is no doubt that the day-long lecture can be made more effective by the use of live demonstrations and especially by making the students active, rather than passive participants.

(To Be Continued)

Worthington Names P. G. G. Delahunt

HARRISON, N. J.—P. G. G. Delahunt has been appointed product sales manager, Decatur products, at the Worthington Corp. Air Conditioning & Refrigeration Div., Ampere, E. Orange, N. J., it has been announced.

Delahunt

In his new post, he will have product responsibility for packaged air conditioners, air handling units, and evaporative condensers.

Delahunt joined Worthington in 1949 and served in various sales capacities prior to his latest assignment in 1954 as assistant to product sales manager, central station products, in the corporation's Air Conditioning & Refrigeration Div.

Janitrol, R-B-M Now In ARI

WASHINGTON, D. C.—Janitrol Heating & Air Conditioning Div., Surface Combustion Corp., and the R-B-M Div., Essex Wire Corp., have been elected to membership in the Air-Conditioning & Refrigeration Institute, ARI announced.

Janitrol also has been elected to ARI's Unitary Air Conditioner Section. William M. Myler, Jr., chief engineer, will be official representative of the division to ARI, with Harry C. Gurney, general sales manager, serving as alternate.

R-B-M is a member of ARI's Temperature Controls Section. V. A. Hedlund, division sales manager, will be representative to ARI, and W. T. Hopkins, assistant sales manager, alternate.

Taggert Expands

NEW YORK CITY—In an expansion move, Taggert Corp., plumbing, heating, and air conditioning contractor, has leased a major portion of the fourth floor of the recently completed 22-story air conditioned office building at 630 Third Ave., it was announced by Wylie F. L. Tuttle, president of Collins Tuttle & Co., Inc., renting and managing agent.

Coldin Names Limmer

NEW YORK CITY — Lou Limmer, former first baseman for the Philadelphia and Kansas City Athletics, is now associated with Coldin Cabinet Co. as assistant plant superintendent, the firm announced.

Vilter Announces New Air Agitated Ice Builders

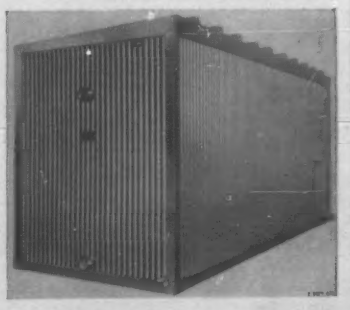
MILWAUKEE—A new line of air agitated ice builders has been announced by The Vilter Mfg. Co. here.

The new ice builders are available in 31 different ice holding capacities ranging from 1,850 lbs. for the smallest unit to 77,000 lbs. for the largest.

Units from 1,850 through 11,400 lbs. capacity are available for Refrigerants 12 and 22, while units from 2,000 to 77,000 lbs. capacity are available for ammonia.

Units employing Refrigerants 12 or 22 are designed for direct-expansion operation while units employing ammonia are designed for flooded operation.

"All the new ice builders are equipped with a small, low horsepower positive displacement V-belt driven blower which provides the air needed to agitate the water in the tank," it was pointed out. "Investigation has shown that during the ice build-up period this method of circulation tends to produce a clear, even formation of ice on the coils.



VILTER air agitated ice builders are available in 31 different capacities.

"On the other hand, during the product cooling cycle, air agitated circulation effects an even melting of ice over the entire coil, thus maintaining an almost constant temperature of about 33°-34° F. in the outgoing 'ice' water."

Four models up to and including a capacity of 10,200 lbs. coil centers are 7½ in. vertical by 7½ in. horizontal. Coil centers for all larger models are 7 in. vertical by 7½ in. horizontal. With these centers, about 13 lbs. of ice can be frozen per foot of pipe, the company said.

The tanks for all models are of heavy steel plate, braced to prevent bulging. The galvanized steel tank covers are of the sloping overlap type, conforming to U. S. Health Dept. requirements.

If required, the covers can be insulated with 2 in. of "Styrofoam." When insulation for the tank is included, it consists of 3 in. of Styrofoam in the sides and 2 in. on the bottom, according to Vilter.

"The new ice builders were designed for applications where peak load cooling is a problem," it was noted. "They are especially suitable for dairies, churches, meeting halls, breweries, and chemical plants where peak loads are constantly encountered."

Refrigeration Problems
And Their Solution
(As Written by Paul Reed)

Blower or Suction Fan for Condenser (2)

SHROUD ESPECIALLY EFFECTIVE WITH SUCTION FAN

For the suction fan to be most effective, the condenser should be equipped with a shroud; otherwise, the fan gets some of its air from the fan side of the condenser, instead of drawing it all through the condenser.

If a shroud is not used, the suction fan should be very close to the condenser in order to minimize the amount of air that will slip in from the sides. Even then, the corners do not get much air through them, and the air distribution through the central part of the condenser is not uniform.

With a shroud, the suction fan can be placed some distance from the condenser, thus giving a uniform distribution of air through the condenser, thereby reducing "hot spots" and resulting in a minimum of condensing temperature and head pressure.

Another advantage of the suction fan is that the air to the condenser is at room temperature, whereas with the blower fan much of the air to the condenser is heated somewhat by passing over the hot motor. Naturally, the cooler the air to the condenser, the lower is the head pressure.

CONDENSER NEARER A WALL WITH SUCTION FAN

With the suction fan, the condenser can be placed much nearer a wall than with the blower fan. With the suction fan, the air flows in to the condenser from all sides; whereas with the blower fan, an air pressure (or "static pressure" as it is called) is created between the condenser and the wall.

The static pressure reduces the capacity of the fan in cubic feet per minute of air through the condenser. Also, it may even result in some recirculation of heated air back through the corners of the condenser. In applications in which the condenser must be up close to a wall, the suction fan is almost a "must."

REVERSING THE FAN

As the reader found, just turning a blower fan around does not make it a suction fan. If it is a straight flat blade, turning it around will have little or no effect. Most fans have curved blades, so they should not be turned around, for they will then blow less air than before.

On some units it is practical to turn the fan around, if the direction of rotation of the motor can be reversed. This will convert the blower fan to a suction fan. If this is done, the fan should be quite close to the condenser, unless it is shrouded.

Converting a blower fan to a suction fan by turning it around and reversing its direction of rotation is not often practical, because of one or several of the following reasons.

1. The motor may not be reversible.
2. It may not be possible to turn the fan around on the fan motor shaft.
3. The overhang of the blades may strike the belts or the condenser.
4. Perhaps the compressor cannot be operated in the opposite direction of rotation without lubrication trouble—especially if it uses an oil pump, slinger, or oil dippers on the rods.
5. Some seals cannot be reversed.
6. The belts may not operate properly in the reversed direction.
7. The motor may overheat, because of the hot air from the condenser blowing over it. This may be partially or entirely offset by the fact that much more air is blowing over it, and by lower head pressures which reduce the load on the motor.
8. There may not be an outlet for the air from the suction fan; that is, it may build up a static pressure against a wall of the compartment. Air to a fan can come in from the sides, but from a fan, the air flows in approximately a straight line directly away from the fan.

Notwithstanding all of the above discussion as to why a blower fan probably cannot be converted to a suction fan, or even why a suction fan should not be substituted for a blower fan (as per items 2, 3, 7, and 8), there are many installations on which a suction fan can be put on in place of a blower fan.

These points are not mentioned to discourage the use of a suction fan, but simply to point out some of the things that must be considered before making a change from blower to suction fan.

The proof of the pudding is said to be in the eating thereof. So if replacing the blower fan with a suction fan results in lower head pressures, cooler liquid refrigerant, and better over-all performance, then perhaps the change should be made.

(The End)

Practical Suggestion on Capacitors Offered Servicemen at Midwest RSES

ST. LOUIS — Some practical pointers on working with motor capacitors were outlined before the 10th annual educational conference of the Midwest Association, Refrigeration Service Engineers Society here by Chester Curry, St. Louis serviceman and former trade school instructor.

Pointing out that a capacitor-start motor is cheaper, quieter, requires less service, and has greater starting torque than the repulsion-induction motor, Curry explained that a starting capacitor puts the amperage in phase with the voltage and increases the voltage across the start winding about one-third.

"Size of the starting capacitor is not too critical," Curry asserted. "If, for example, a particular motor requires a 150 m.f.d. starting capacitor, it will probably work okay with a capacitor of 135 m.f.d. or less in an emergency.

"But don't go out of your way to install a wrong size capacitor," he warned. "Too large a capacitor," he also explained, "will reduce the starting torque to the point that the motor may not start.

"Capacitors can be put on split-phase motors," Curry also said. "Here lately in our own shop we've had a lot of trouble with getting a particular brand of freezer to start. We've often corrected the problem by putting a capacitor in series with the starting winding."

On the subject of checking capacitors, Curry suggested that the simplest approach is to substitute a new capacitor to see if that works.

Capacitor ratings can be determined by using the formula:

$$\frac{\text{Amp.} \times 2{,}650}{\text{Volts}} = \text{m.f.d.}$$

"If a capacitor is shortened, however," Curry cautioned, "it will wreck your ammeter. This can be avoided by putting a 750-watt cone type resistance heater unit in series with the capacitor and ammeter. The heater will protect the ammeter in case the capacitor is shorted."

When the heater unit is employed in this way, though, the above formula is changed to:

$$\frac{\text{Amp.} \times 3{,}830}{\text{Volts}} = \text{m.f.d.}$$

If a serviceman finds he needs a larger capacitor than he has available on a service call, he can hook smaller capacitors in parallel, and the total capacitance rating will be the sum of the capacitors used, Curry explained. The voltage would remain the same, however.

Should it be necessary to apply 115-volt capacitors on a 230-volt system, these capacitors could be hooked up in series to get the required voltage rating, he said.

Capacitance would be cut in half in this hookup, however, so the serviceman could tie in another set of capacitors to obtain the required m.f.d. rating.

Running capacitors were touched upon also by Curry, who explained that such a capacitor increases the power factor and makes the motor more efficient, drawing less amperage.

"If the running capacitor is shorted, the start winding will be kept in and something will blow," he warned. "If the running capacitor is open, however, the motor will still run, but the amperage will go up."

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DETROIT, 450 W. FORT ST.,
WOODWARD 2-0924, AL SCHILDHAMMER.

WHAT . . WHEN . . WHERE

Dairy Industries Exposition
Dec. 8-13, Navy Pier, Chicago.

National Association of Home Builders Exposition
Jan. 18-22, Chicago.

Industrial Heating Equipment Association Meeting
Jan. 19-20, Cleveland.

International Heating & Air Conditioning Exposition
Jan. 26-29, Convention Hall, Philadelphia.

Home Improvement Products Show
Feb. 4-6, Coliseum, New York City.

Lee D. Callans Dies of Cancer at 47

NEW YORK CITY—Lee D. Callans, 47, a sales manager for General Chemical Div., Allied Chemical Corp. here, died of cancer at Washington Hospital Center, Washington, D. C.

He is survived by a son, Dans, 15, and his mother, Mrs. James D. Callans of Hopewell, Va.

A member of the Allied Chemical organization since 1950, Callans had headed sales of the company's "Genetron" propellants to the aerosol industry and refrigerants to the O.E.M. market since 1954.

North Carolina To Conduct Refrigeration Short Course

RALEIGH, N. C. — Five-day short course in fundamentals of refrigeration theory and application practices will be held here March 9 to 13 by the Mechanical Engineering Dept., North Carolina State college, through the College Extension Div., according to James A. Deam, executive secretary of the N. C. state board of refrigeration examiners.

NARDA Service Management School Set for Mar. 25-27

CHICAGO—The National Appliance & Radio-TV Dealers Association announced that the second NARDA School of Service Management will be held March 25-27 on the Chicago campus of Northwestern university.

The association also reported that heavy advance registration for the 1959 NARDA Institute of Management, a week-long course to be held next summer at American university in Washington, D. C., indicates that this will be the biggest in the institute's history.

Scheibel Purchases 2 Toledo Firms

TOLEDO—J. Adrian Scheibel has announced the purchase of Kold Draft Toledo Co. and Adams - Ashland Refrigeration Co.

He will continue the businesses as Gladco Refrigeration Co. at 2035 Adams St.

Air Cooled Showroom

THOMASVILLE, N. C.—Air conditioned, Thomasville Chair Co.'s new showroom building provides 50,000 sq. ft. of floor space.

Now Representing . . .

Metal Industries, Inc. — AIR CONDITIONING SUPPLY CO., Los Angeles, has been named exclusive distributor in southern California for "All Aluminum Metal-Aire" grilles and registers.

Whirlpool Corp. — "RCA Whirlpool" appliances will be distributed in the Atlanta merchandising area by Whirlpool's new SOUTHEAST SALES DIV., 200 Ottley Dr., N. E., Atlanta, with Harold W. LeVan as general manager. The branch will take over the functions previously performed in the region by the Atlanta division of King's Appliance & Electronics, Inc., which remains as RCA Whirlpool appliance distributor in its principal territory of Savannah.

Pyle-National Co. — HARSHE-ROTMAN, INC., Chicago, has been appointed public relations counsel.

Wecksler Thermometer Corp.— PACIFIC METALS CO., LTD., San Francisco, has been set up as a stock jobber.

Cambridge Filter Corp. — R. D. MARSHALL & CO., INC., Albany, N. Y., has been named representative for northeastern New York and Berkshire County, Mass.

Modine Mfg. Co.—Named sales representatives were J. F. SCOULER CO. for the Harrisburg, Pa. territory, CHAS. A. GREGORY & ASSOCIATES, Richmond, Va., BETTER AIR PRODUCTS CO., Baltimore, and HEET-FLO CO. in the Los Angeles territory.

York Corp. — Appointed franchised associates for the sale of industrial type air conditioning and refrigeration products were SUPER SUPPLY CO., INC., Greenville, S. C.; BAILEY CORP., New Orleans; T. LOUIS MURRAY, INC., Columbia, S. C.; HANSEN'S, INC., Modesto, Calif.; VALLEY ENGINEERING CO., Jenkintown, Pa.; and SHUMAN CO., Charlotte, N. C.

Buensod-Stacey, Inc. — ARTHUR S. LEITCH CO., LTD., with offices in Montreal, Ottawa, and Toronto, has been appointed sales representative for eastern Canada to the western boundary of Ontario. BUSCH CO., Pittsburgh, was named to service western Pennsylvania.

Embassy Steeel Products, Inc.— STUART DAVIS & CO., Royal Oak, Mich., has been appointed sales representative for Michigan.

Bastian-Blessing Co. — ROBERT E. WALTER CO. of Kingston, Pa., has been appointed distributor of Bastian - Blessing fountain-luncheonettes and "Custom-Modular" cafeteria equipment.

N. Y. RSES To See Film on Changing Refrigerants Dec. 10

NEW YORK CITY — At a meeting of the Metropolitan New York Chapter of the Refrigeration Service Engineers Society, to be held Dec. 10 at the Broadway Central hotel, 673 Broadway, Marv Meirowitz and Wallace Smith of General Chemical Div., Allied Chemical Corp., manufacturer of "Genetron," will show a 20-minute film entitled "Changing Refrigerants."

The first quarter of the film reviews the older refrigerants such as methyl chloride and sulfur dioxide.

The next three quarters deal with the change involved when using Refrigerant-22 as it may replace Refrigerant-12. In this regard, design engineering, field installation changes, and service problems will be discussed. A question-and-answer period will follow.

Defense Dept. Approves Some Home Cooling--

(Concluded from Page 1, Col. 2)
areas have been air conditioned in the past, but only as the result of "exception to policy" rulings—a procedure which can become rather involved. The new instruction eliminates this necessity.

Another section of the revised instruction, however, requires that all proposals for installation of air conditioning in existing buildings be submitted by each military department (Air Force, Army, Navy) to the Assistant Secretary of Defense, Properties and Installations.

This requirement might well create considerable "red tape," some believe.

Living Quarters at Bottom of List

Personnel living quarters are at the bottom of the priority list for air conditioning in the new instruction. Priority of such installations in existing buildings is officially listed as follows:

1. Direct military operational facilities.
2. Hospitals and related medical or dental facilities.
3. Training facilities.
4. Technical and industrial facilities.
5. Indirect military operational facilities.
6. Administrative facilities.
7. Morale and recreation facilities.
8. Personnel living spaces.

"However," the ruling states, "if only part of a building deserves first consideration and all of the building is approved for air conditioning, the entire building shall be air conditioned at one time, regardless of the order of consideration. . . . The order of consideration shall not be used to justify piecemeal conditioning of any building."

No Cooling In Buildings To Be Replaced In 7 Years

No air conditioning may be installed in buildings which have been scheduled for replacement within seven years.

With respect to new construction, the Department of Defense policy of considering eventual air conditioning or evaporative cooling in the design to achieve a lower total cost even though the actual installation may be delayed is also to apply to personnel living spaces, including those being rehabilitated.

The personnel living spaces as defined in the instruction include: "barracks, dormitories, bachelor and visiting officers' quarters (including administrative space in these four facilities), and family quarters."

These may now have air conditioning "in those areas where the wet-bulb temperature is 67° F. or higher 2,200 or more hours during the six warmest months of the year, provided that the area does not qualify under Zone A. Mechanical ventilation may be installed in the remainder of Zone B where less than 2,200 hours of 67° F. wet-bulb temperature are experienced."

Official definition of Department of Defense weather zones is as follows:

"Zone A—Areas where the wet-bulb temperature is 73° F. or higher less than 160 hours during the six warmest months of the year and the dry-bulb temperature is 93° F. or higher 155 or more hours during the same period.

"Zone B—Areas where the wet-bulb temperature is 67° F. or higher 1,000 or more hours during the six warmest months of the year, provided that the area does not qualify under Zone A.

"Zone C—Areas where the dry-bulb temperature is 80° F. or higher for 400 or more hours during the six warmest months of the year.

"Zone D—Areas where the dry-bulb temperature is 80° F. or higher for less than 400 hours during the six warmest months of the year."

These four zones are determined on the basis of weather data compiled by the Air Weather Service of the U. S. Air Force.

Personnel living quarters may now have evaporative cooling in Zone A, air conditioning in Zone B within the previously described limitations, mechanical ventilation in Zone C, but no mechanical system of any kind in Zone D.

Within the qualified areas, a further sub-priority system for air conditioning of existing military living quarters is provided in the new instruction as follows:

"Areas where the wet-bulb temperature is 67° F. or higher for the specified number of hours during the six warmest months of the year: Priority No. 1: 3,500 or more hours; Priority No. 2: 3,000 or more hours; Priority No. 3: 2,500 or more hours; Priority No. 4: 2,200 or more mours; Priority No. 5: 2,200 or more hours and equipped with evaporative cooling." These priorities, however, do not apply to Capehart housing projects or qualified new personnel living spaces.

Although the listing of personnel living quarters is probably the most important change in the new instruction, another ruling is also of interest. The latter permits a base commander to approve the replacement of an existing air conditioning unit "provided that the capacity of the unit is not increased and that the area being conditioned by the unit is not increased."

The latest instruction also continues Dept. of Defense policy favoring central systems.

"A multiplicity of air conditioning units serving adjacent portions of a building is not permitted," is the way the instruction sums it up.

N. J. Racca Elects Officers for 1959

NEWARK, N. J.—The Refrigeration & Air Conditioning Contractors Association of New Jersey, Inc., at a meeting held at the Military Park hotel here, elected new officers for 1959.

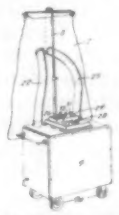
They include Saul Marder, Orange Refrigeration Service, East Orange, president; Bernard Hassan, Hassan Bros., Belleville, vice president; Richard Hughes, Electric Products, Inc., Jersey City, secretary-treasurer; R. L. Eggert, Jr., R. L. Eggert Co., East Orange, sergeant-at-arms.

The new officers will be installed at a dinner-dance at Military Park hotel Jan. 31.

PATENTS

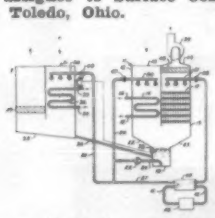
Week of Sept. 16 (Continued)

2,852,022. COMBINED AIR COOLING HUMIDIFYING APPARATUS FOR OXYGEN TENTS. Loyal G. Netteland, Canandaigua, N. Y., assignor to Modern Hospital Equipment, Inc., Waseca, Minn.



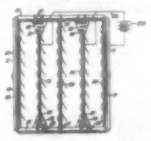
1. Air conditioning apparatus particularly adapted for use in conditioning the air of an oxygen tent, said apparatus comprising a casing defining an air conditioning chamber, mechanism within said chamber for maintaining a predetermined liquid level therein. . . .

2,852,080. LIQUID TYPE AIR CONDITIONING APPARATUS AND METHOD FOR MARINE APPLICATIONS. Gilbert A. Kelley, Toledo, Ohio, assignor to Surface Combustion Corp., Toledo, Ohio.



6. A method for conditioning air which comprises circulating a first stream of a hygroscopic liquid from a sump containing a body thereof, through a first enclosed zone in contact with a cooled surface disposed therein and back into the sump, circulating a second stream of the hygroscopic liquid from the same sump. . . .

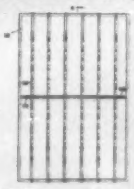
2,852,092. FRAME FOR ELECTRIC PRECIPITATORS. Hal P. Fruth, Skokie, and Harry S. Miller, Chicago.



1. In an electric precipitator, a frame comprising a pair of spaced parallel end members rectangular in outline connected at their corners by four spaced parallel rods, two sets of rectangular electrically conductive collector plates alternating in spaced parallel relationship between and parallel to the end members and peripherally within the rods, fastening means securing the corners of the collector plates to the rods, and means for electrically insulating the plates of different sets from each other.

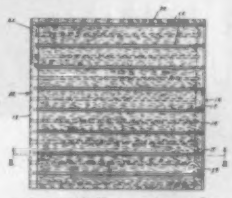
Editor's Note: Patents described here have been selected from the "Official Gazette" of the United States Patent Office. They offer only a brief summary of each invention. In some instances only the first part of the digest is presented.

2,852,093. DISCHARGE ELECTRODE. Rudolf G. Streuber, Bridgewater Township, Somerville, N. J., assignor to Research-Cottrell, Inc., Bridgewater Township, Somerset County, N. J.



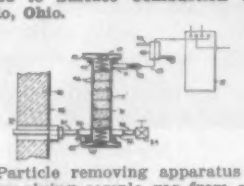
In combination with an electrical precipitator, an extended surface electrode, complementary discharge electrodes comprising elongate metallic ribbons being corrugated laterally of the opposed flat faces to provide a continuous series of substantially symmetrical ridges and grooves substantially throughout the length thereof, supporting means provided to maintain said discharge electrodes in substantially parallel spaced relationship relative to said extended surface electrode. . . .

2,852,094. CASINGS FOR AIR FILTERS. William Stephen Sawle III, Deerfield, Ill.



1. A substantially rectangular frame for replaceably retaining a filter mass, comprising: a pair of mating frame-sections including rails at opposite sides, respectively, a series of cross-bars having one end fixedly secured to one of the rails, a second series of cross-bars having one of their ends secured to the opposite side-rail, and detachably interfitting means between the opposite ends of the bars of the series and the adjacent rails, respectively, for securing the rails spaced apart sidewise conformably to masses of different widths, the series of bars being transversely spaced apart and forming a grill for confining the mass between them.

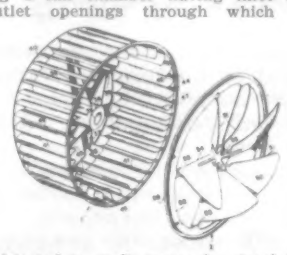
2,852,095. DEW POINT APPARATUS. Ernest G. de Coriolis, Clarke C. Sykes, and Ralph Hanna, Toledo, Ohio, assignors to Surface Combustion Corp., Toledo, Ohio.



1. Particle removing apparatus in a line supplying sample gas from a furnace chamber to a dew point instrument, said apparatus comprising: a housing forming a passage of uniform cross section; first connection means on a side of the housing near one end of said housing adapted to connect said line from said connection means to said furnace chamber. . . .

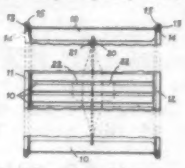
2,852,181. AIR CIRCULATING MEANS. Arthur E. Kline and Wendell E. Webster, Albion, Mich., assignors to McGraw-Edison Co., Albion, Mich.

In a room air conditioner comprising a fan chamber having inlet and outlet openings through which air



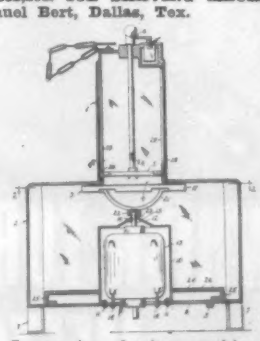
subjected to cooling may be circulated, a one-piece die-cast centrifugal fan in said chamber having its air inlet side presented to said inlet opening, said centrifugal fan including a blade carrying annulus remote from the fan inlet side and a plurality of blades die-cast with and projecting perpendicularly from the annulus. . . .

2,852,182. BLOWER. Carl E. Wilken, New Lebanon, Ohio, assignor to The Lau Blower Co., Dayton, Ohio.



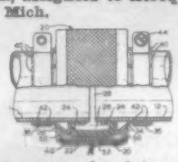
11. A double inlet blower wheel of the character described comprising a plurality of blades arranged around the periphery of said wheel and extending axially thereof, end rings of greater inner diameter than the inner diameter of said blades engaging and retaining the ends of said blades in fixed radial and circumferential spacing, a unitary supporting disk formed from a single sheet of material located within said wheel intermediate said end rings and of lesser outer diameter than the inner diameter of said end rings. . . .

2,852,201. ICE SHAVING MACHINE. Samuel Bert, Dallas, Tex.



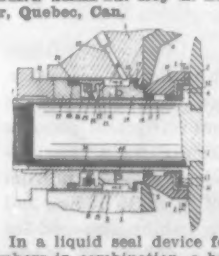
1. In an ice shaving machine, the combination of a lower receptacle for shaved ice including a bottom provided with a drain, an upper receptacle for holding a block of ice to be shaved, a moisture-proof housing disposed in said lower receptacle and secured to the bottom thereof, said housing including a substantially frusto-conical upstanding top wall portion provided at its center. . . .

2,852,282. FLEXIBLE FLUID SEALED JOINT FOR RIGID TUBES. John Smisko and Roger R. La Marre, Jackson, Mich., assignors to Aeroquip Corp., Jackson, Mich.



1. Joint means for inter-connecting axially opposed ends of rigid fluid conductor pipes so that the pipes can have limited relative swinging motion at the joint yet remain sealed against leakage of the fluid and in which the opposed pipe ends have plain cylindrical exterior surfaces, said joint means comprising in combination, a pair of similar anchorage ring members each having an end portion. . . .

2,852,284. LIQUID SEAL FOR ROTATING SHAFTS. Roy E. Bryson, Val d'Or, Quebec, Can.



1. In a liquid seal device for sealing chambers in combination, a housing including a circular sealing recess located outside of the housing in the wall of said housing and a rotatable shaft passing through said sealing recess, a series of pressure rings surrounding said drive shaft and located within said sealing recess. . . .

(To Be Continued)

Servicing Automobile Air Conditioners

(Vol. 3)

BY C. DALE MERICLE

A.R.A. Mfg. Co.
P.O. Box 1636
Fort Worth 7, Texas

A.R.A.

Models produced in 1958 by A.R.A. consisted of the "Direct-Aire" hang-on unit and the "President" trunk model plus a few special units.

Chief differences between 1958 and 1957 models as they affect service are as follows:

Compressor: Tecumseh's "Lowboy" or the York aluminum compressor are used interchangeably on 1958 units. The Lehigh V-93 was standard on 1957 systems.

The Warner magnetic clutch continues on 1958 air conditioner models.

Condenser: Still located in front of radiator.

Evaporator: No basic change in refrigeration system, but color moldings were made available for Direct-Aire case and control panel on Direct-Aire unit was moved to left side from position on bottom employed on 1957 models.

Controls: Panel, as stated above, is on left side of 1958 Direct-Aire units. It includes adjustable thermostat for cycling magnetic clutch, blower control, and toggle switch permitting selection of automatic (thermostat) cycling of clutch and compressor or manual (constant) operation of clutch and compressor.

Major change is use of rheostat blower control permitting infinite speed variation compared with two-speed blower control on 1957 models.

No significant changes were incorporated in 1958 President (trunk) controls.

Refrigerant charge: Same as in 1957 models (3 lbs. Refrigerant-12 in Direct-Aire; 3½ lbs. in President).

Service hints: All general service suggestions on 1957 A.R.A. units in Vol. 2 of this series will apply to 1958 models.

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SALES—N. Y. C. area or South. Over 15 years' experience in air conditioning, refrigeration and heating. Export and management experience. Commission basis or salary. Desire position with manufacturer or major distributor. BOX A6147, Air Conditioning, Heating & Refrigeration News.

ATTENTION EAST Coast, man working in middle west, originally from east would like to go back. Experienced—12 years in commercial and industrial refrigeration and air conditioning. Also can do heating service and installation. I am a responsible family man and a reliable steady worker. Write BOX A6148, Air Conditioning, Heating & Refrigeration News.

MAN IN forties desires relocating, preferably in west, south west or south. Twenty-two years' experience. Capable of designing and laying out air-conditioning, heating and refrigeration installations. All phases up to and including 200 tons. Twelve years' experience in supervision of service and installations. BOX A6149, Air Conditioning, Heating & Refrigeration News.

POSITIONS AVAILABLE

MANUFACTURERS' REPRESENTATIVES for all territories East of Rocky Mountains. Substantial earnings on proven product with high list price of West Coast manufacturer, over 500 installed in Southern California. Specialty sales experience desirable with ability to establish and train direct sales organizations. Advise territory now covering and types of lines handling. BOX A6145, Air Conditioning & Refrigeration News.

REFRIGERATION ENGINEER. Refrigeration and fixture company now selling nationally known lines of equipment to supermarkets wishes to set up complete service and installation department. Applicants must be technically and mechanically qualified and experienced in all phases of refrigeration engineering from primary organization of such a department to supervision of personnel and general ation News.
trouble shooting. Position will require permanent residence in large west coast city. Applicants should state references, experience and expected salary in first reply. All correspondence confidential. BOX A6146, Air Conditioning, Heating & Refrigeration News.

REGIONAL MANAGER for southern territory. AAA-1 manufacturer has immediate opening for man 27 to 35 with successful sales background calling on distributors, dealers and architects. Sales experience in food equipment industry also valuable. Send complete resume to BOX A6151, Air Conditioning, Heating & Refrigeration News. Agents do not reply.

EQUIPMENT WANTED

WANTED: MANUFACTURERS surplus, outdated or obsolete refrigeration items—expansion & water & shutoff valves, controls, relays, dehydrators, units, tubing, fittings, etc. All sales on a cash close-out basis, large or small quantity. Write or call: COMMERCIAL CONTROLS CO., 257 East 3rd Street, New York 9, N. Y., ORegon 3-7210.

USED AND obsolete refrigeration compressors, condensing units, valve plates and parts for York, G. E., Par, Mills, Brunner, Carrier, Universal, and others. Furnish full description as to model number, horsepower, etc. UNITED REFRIGERATION CORPORATION, 514 W. 12th Street, Los Angeles 15, California.

EQUIPMENT FOR SALE

USED ELECTRIC motor. 100 h.p. heavy duty high torque single winding 208 volt ball bearing. Manufactured by Electric Machinery Corporation. In excellent condition and equipped with 17.5 pitch diameter 8 groove D width pulley. $1200.00 FOB Jacksonville, Florida. Contact CHAPMAN AIR CONDITIONING COMPANY, Apartment #506, St. Johns Apts; Jacksonville 2, Florida.

MODEL HH 2 h.p. automobile air conditioning compressors tapered shaft, vertical mount, complete with flywheel $33.95. Send for free circulars and catalogs on money saving refrigeration & air conditioning parts and supplies. WALTER W. STARR, 2833 Lincoln Ave., Chicago 13, Illinois.

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UNUSUAL OPPORTUNITY to purchase well established firm built on engineering and quality. Commercial refrigeration, residential and commercial heating and air conditioning. Complete refrigeration department, pipe shop, sheet metal shop. Population 150,000. Owner permanently handicapped. Tightly controlled union area. Only four other shops. Golden opportunity for two or three aggressive young men. Will sell all or part with or without real estate. BOX A6150, Air Conditioning, Heating & Refriger-

Air Distribution Requirements In Year-Round Air Conditioning

DEVELOPMENT OF REFRIGERATION CYCLE

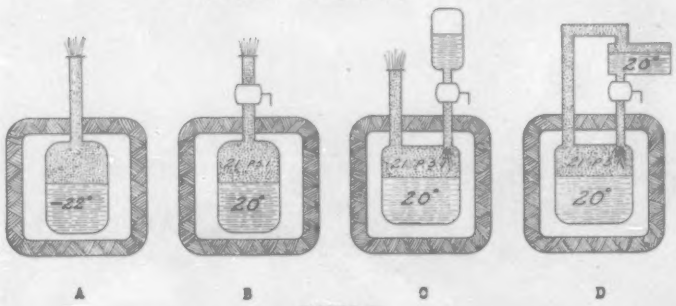


FIGURE 50

Part 3—Fundamentals of Equipment

By Frank D. Klein, Chief Engineer, Governair Corp.

Let's review the refrigeration cycle and refresh our memories on what exactly happens.

Refer to Fig. 50 reproduced through the cooperation of the Copeland Refrigeration Corp. Here the development of the Refrigeration Cycle is shown graphically.

(1) In "A" is a container which can be classed for the purposes here as the Evaporator Coil, and in this case is charged with Refrigerant-12. The container is enclosed in another container whose walls are insulated. If the outlet of the refrigerant container, or evaporator, is allowed to discharge to the atmosphere at normal pressure or zero gauge the refrigerant will boil at approximately -22° F.

(2) If in "B" the discharge outlet is restricted by putting a valve in it, and subsequently closing it down to a given point, letting the refrigerant discharge at a lower and given rate the "boiling point" or pressure can be controlled to a 21 p.s.i. above atmospheric pressure, thus allowing the refrigerant to boil at 20° F. Thus, by increasing the pressure in the container or evaporator from 0 p.s.i. to 21 p.s.i. the evaporator temperature is raised.

(3) If in "C" instead of restricting the amount of refrigerant escaping, the amount entering the vessel or evaporator is restricted, and by so doing a constant pressure of 21 p.s.i. is maintained, we accomplish the same function as in "B."

The refrigerant is not discharged into the air in the refrigeration cycle, of course. On the other hand as in "D" the refrigerant vapor is discharged into still another container, known as the condenser. Here the vapor condenses back to liquid and thus can be used over again to vaporize to gas for cooling purposes.

Because there is heat involved in the vaporization of the refrigerant in the refrigeration cycle, and because the foregoing illustrations (a) show that the heat involved goes into the evaporator, bringing about cooling, and (b) the refrigerant vapor carries this heat out to the condenser, where it loses the heat, thus is cooled and condensed back to a liquid, some means must be provided to remove this heat from the vapor at higher temperature more normal to the useable cycle, such as at 70° F., and in turn bring about the condensing cycle.

Otherwise we could make a direct application of the simple foregoing cycle. As a result, the next problem then is to provide some method for condensing the refrigerant vapor at a higher temperature than 20° F.

We know, of course, that the CONDENSING TEMPERATURE AND PRESSURE of a refrigerant is the same as its EVAPORATING PRESSURE AND TEMPERATURE. When in a liquid form and heat is added, the refrigerant boils and turns to a vapor at a given temperature and pressure characteristic of its chemical and physical composition. When the amount of heat is extracted from the refrigerant that was added to it to accomplish this "boiling point" it is returned to its original liquid form.

It isn't necessary to remove this heat at the same pressure and temperature at which it was added; it can be removed at higher temperatures as long as the pressure is corresponding, such as those shown in the following table:

Refrigerant-12

Temperature Of Removal	Corresponding Pressure
0° F. at OR	9.2 p.s.i. gauge
20° F. at OR	21.0 p.s.i. gauge
80° F. at	84.0 p.s.i. gauge

In causing the temperature and pressure to rise it is necessary to do some "work" on the vapor. In the refrigeration cycle we COMPRESS it. Thus, for example (refer to Refrigerant Tables), to bring about a situation where the compressed vapor would readily cool at 70° F. and the COMPRESSED vapor was at 100 p.s.i. and 90° F. there would be a temperature differential of 20° F. between the room air (70° F.) and the Condenser.

Thus, the following conditions will prevail in the cycles:

1. **IN THE COMPRESSION CYCLE** (example)

(a) Low pressure vapor, containing heat, emanating from the evaporator coil at 9.17 p.s.i. corresponding to 10° F.

(b) As it reached the compressor it has picked up heat or, as is generally stated, it has been superheated, let us say to 65° F., but it is still at 9.17 p.s.i.

(c) The gas enters the compressor and in turn is compressed to where it enters the condenser at 100 p.s.i. As a result of the "work" done on the vapor or refrigerant heat is added (Heat of Compression) to a point to where its temperature is now let us say 172° F.

(d) The room temperature is, let us say, 70° F., and to bring about exchange or flow, the condensing temperature must be greater than 70° F. Assuming a 20° F. differential, there is a condensing temperature of 90° F. As a result the gas must be changed from 172° F. to 90° F. in order to condense it. In this process what is accompiished is the removal of the sensible or superheat to bring about Latent Heat removal.

Next: The Condensing Cycle (Receiver).

Revere Raises Prices on All Copper Products

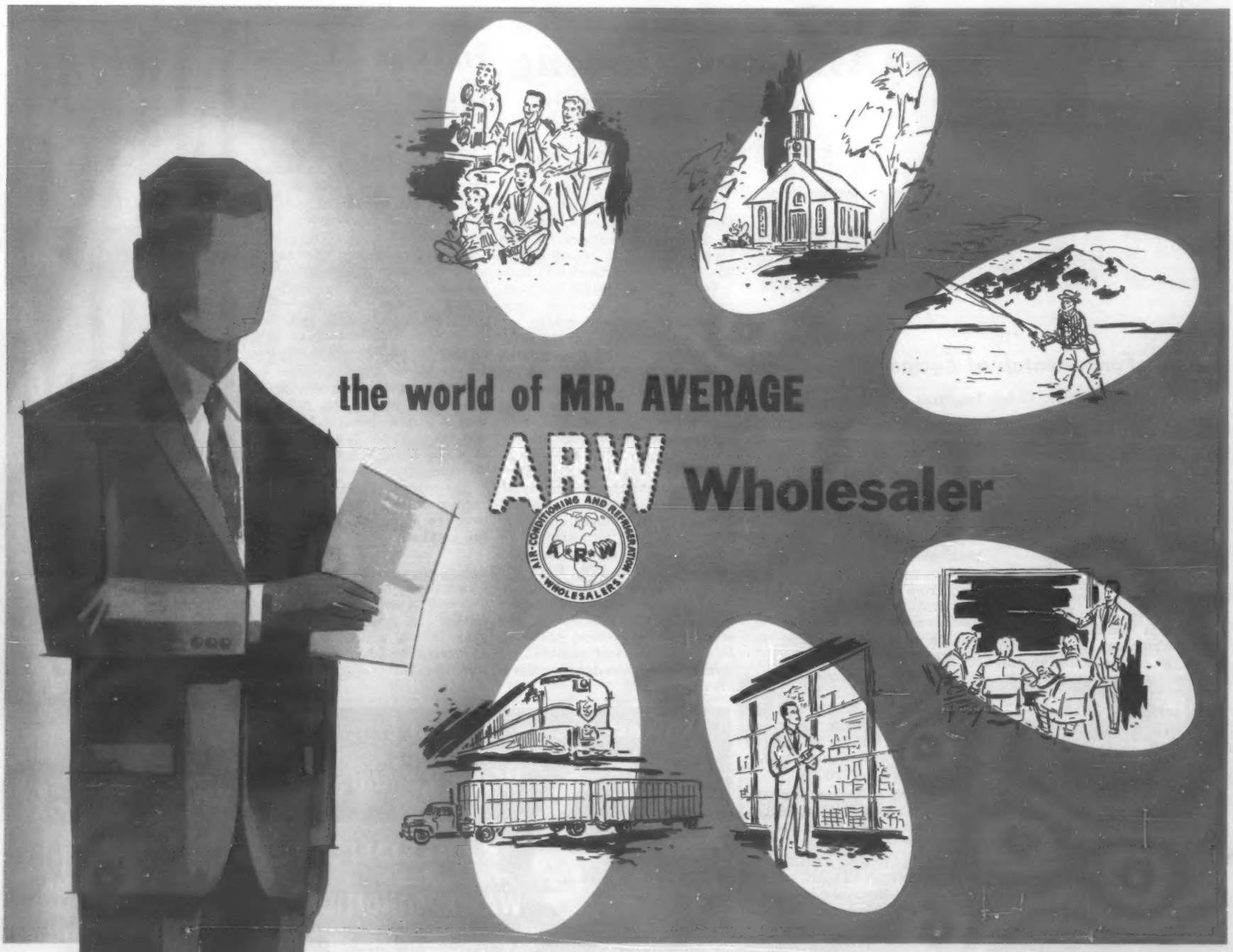
NEW YORK CITY — Revere Copper & Brass, Inc. announced it has raised prices and average of about 2½% on all copper and copper alloy products, effective with shipments Dec. 1.

The company said base prices of its products will be increased between 1 and 1½ cents a pound. "Extra" charges — fees for special processing and handling—also will be boosted 10% on all items except seamless copper tube.

Revere said prices of copper water tube will mostly reflect a cent a pound increase in seamless tube; ¾-in. L and M types of water tube, however, will go up "somewhat" more.

The price increases stem from "accumulated" rises in costs over the past year, according to the company.

In another development, American custom smelters reduced their copper price ¼ cent a pound to 29¾ cents, the first change in the smelter price since Oct. 20 when it was raised 1½ cents to 30 cents. Also, it was the first price drop since Aug. 6.



his place in the community . . . his problems in business

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